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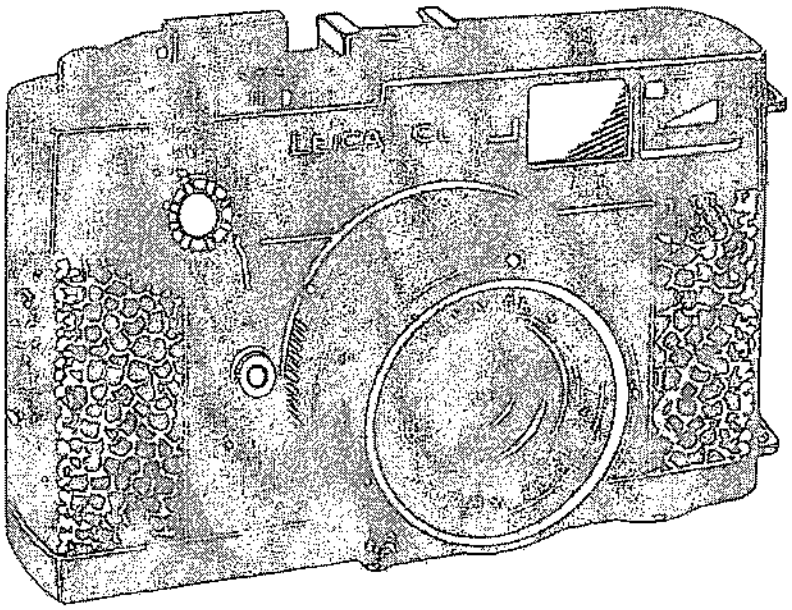
LEICA CL



SERVICE INFORMATION

ERNST LEITZ WETZLAR GMBH

TECHN. SERVICE Dokumentation und Info

views show the parts and sub-assemblies in the proper sequence of assembly. The specification sheets indicate the parts order numbers (stock numbers), descriptions, price groups (PG), and the required quantity for each unit, which may help in ordering a sufficient number for your stock.

Always check to insure that the part to be ordered is selected in accordance with the serial number of the item and the serial number range indicated on the page heading.

Parts requiring special lubricants, cleaning fluids, adhesives, and lacquers are identified by special symbols and letters.

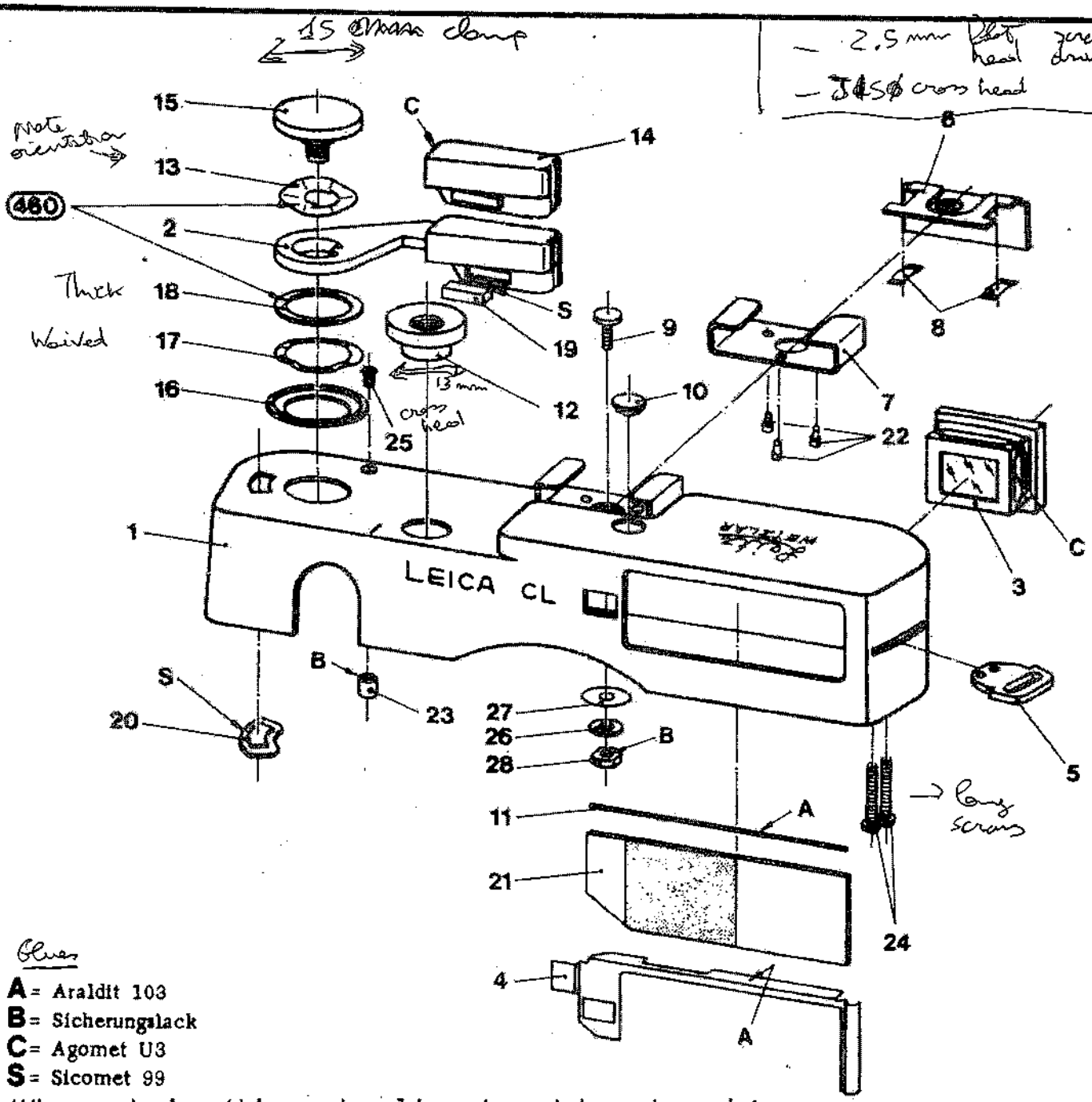
Adhesives:
- A - Araldit 103, Hardener 953 F, or 5-minute Epoxy
- AS - Araldit 121 S, Hardener 951, or 5-minute Epoxy
- U - UHU-hart or Duco Cement
- B - Protective Lacquer, Thinner 13 652
- F - Teroson Fluid Special, Terokal Thinner D
- G - Liquid Resin
- E - Adhesive EC 880

In order to guarantee perfect functioning, only these lubricants and adhesives, which have been tested and approved by the manufacturer, must be used.

Components which require treatment with adhesives must be free from grease. Remnants of hardened adhesive or cements should be removed with the appropriate thinner. All parts requiring lubrication must be dry. Glass and rubber parts must not come into contact with oil or grease. Lacquered and engraved parts must not be moistened, but should be cleaned with a soft dry chamois leather or a brush. All parts and sub-assemblies should be cleaned outside the housing whenever possible.

ERSATZTEILLISTE

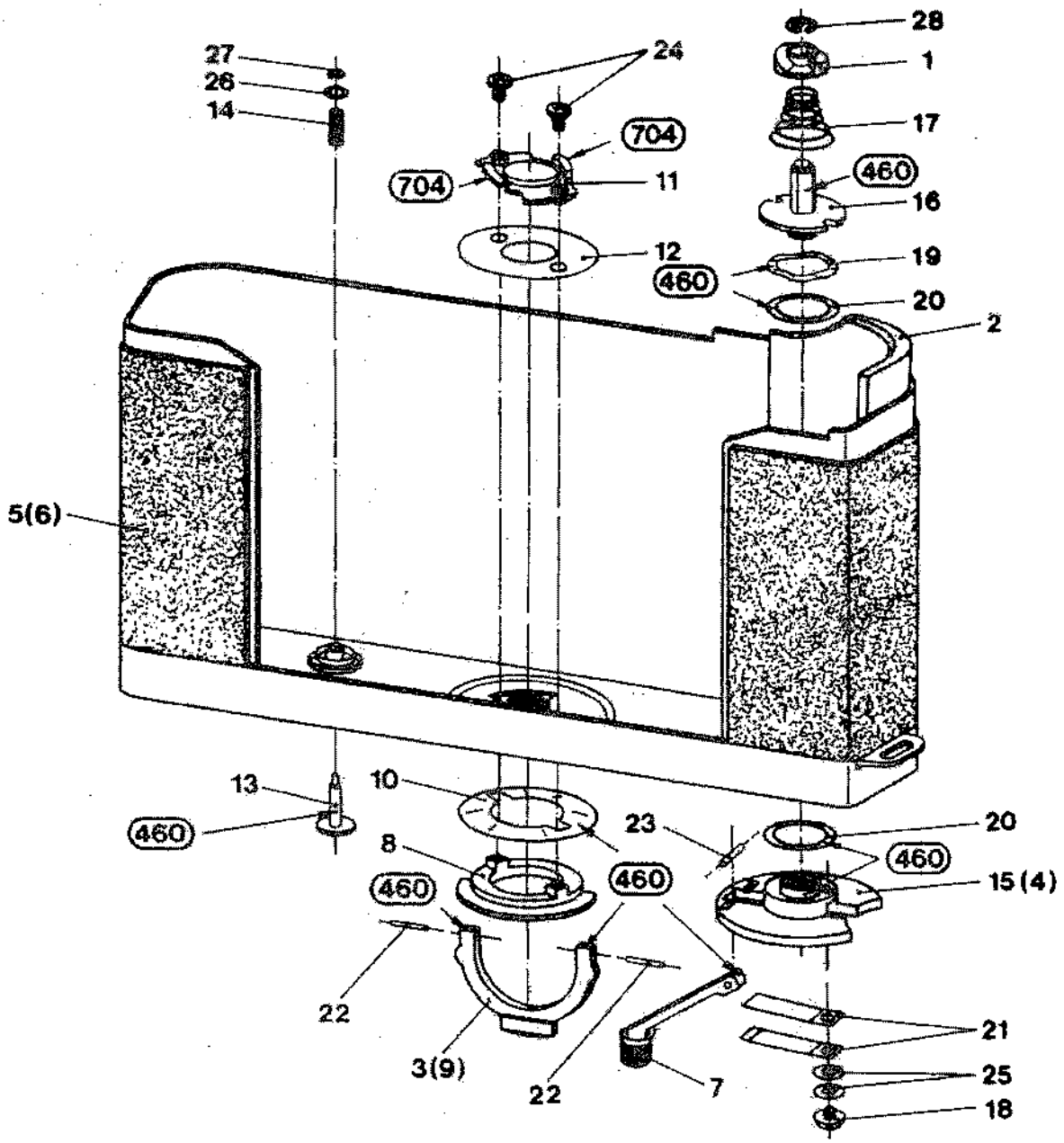
ERNST LEITZ WETZLAR GMBH
TECHNISCHER SERVICE
Dokumentation und Info



Glues

A = Araldit 103
B = Sicherungslack
C = Agomet U3
S = Sicomet 99

*When ordering this part, old part must be returned to Rockleigh prior to shipment of new one.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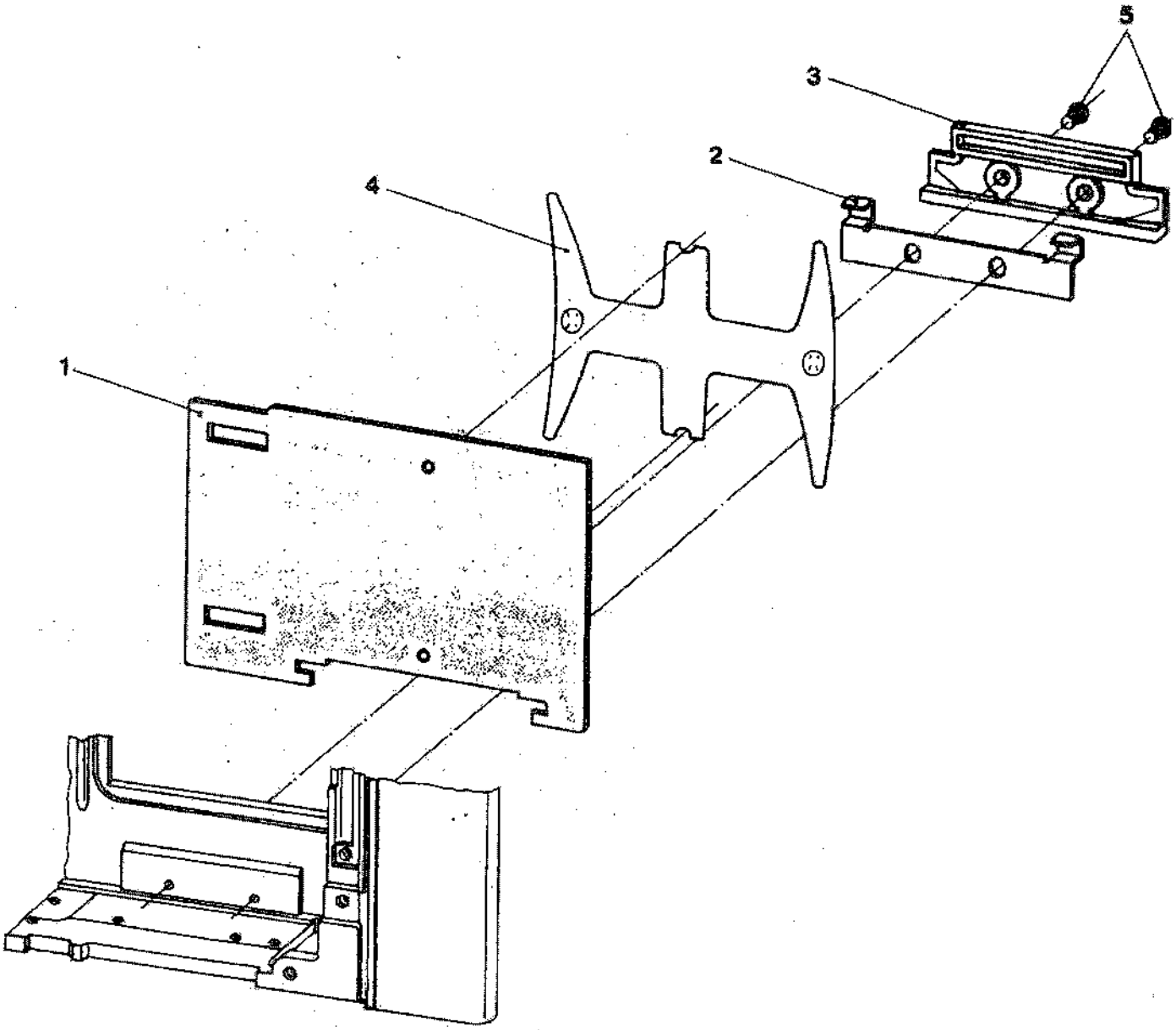
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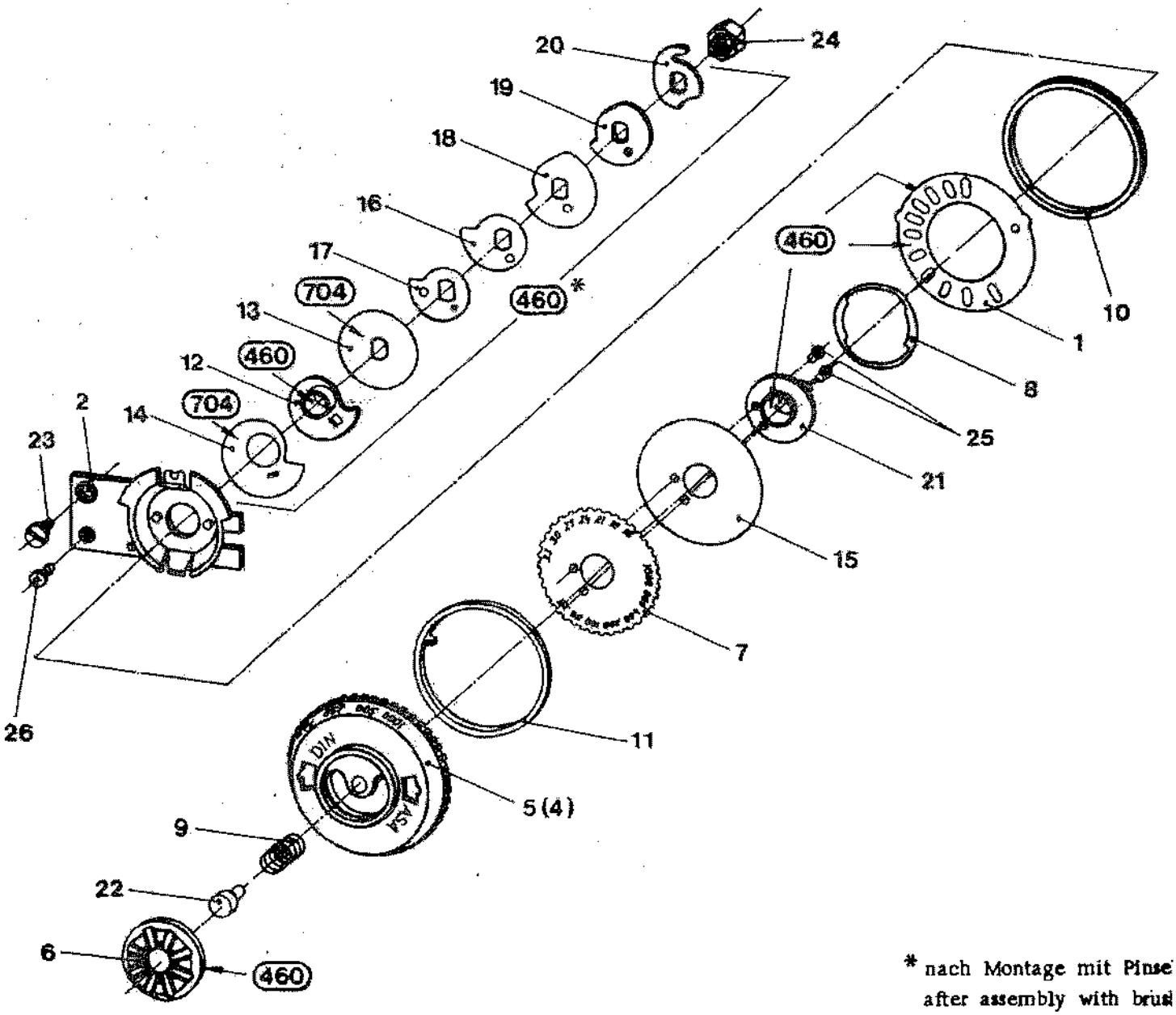

* nach Montage mit Pinse
after assembly with brus

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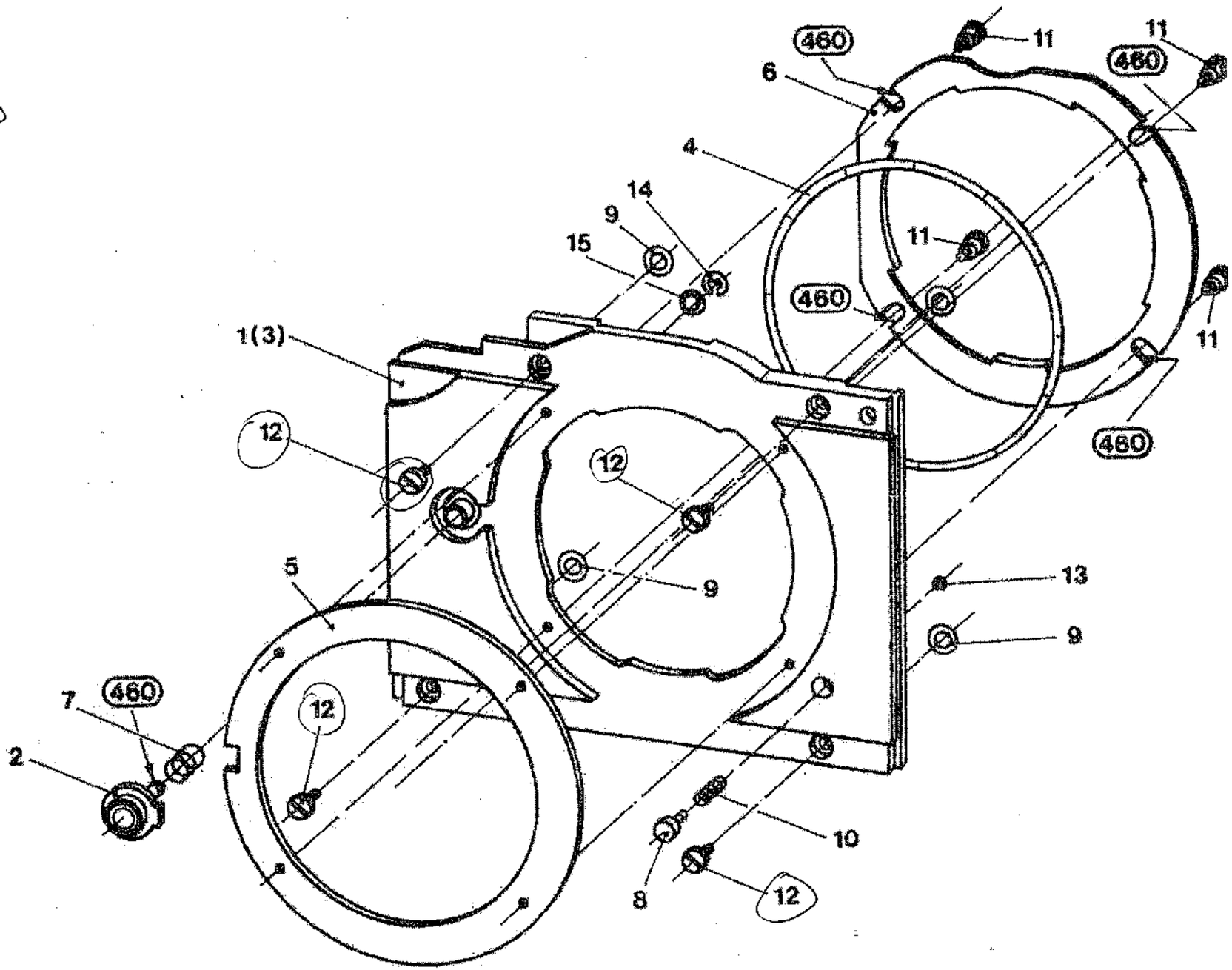

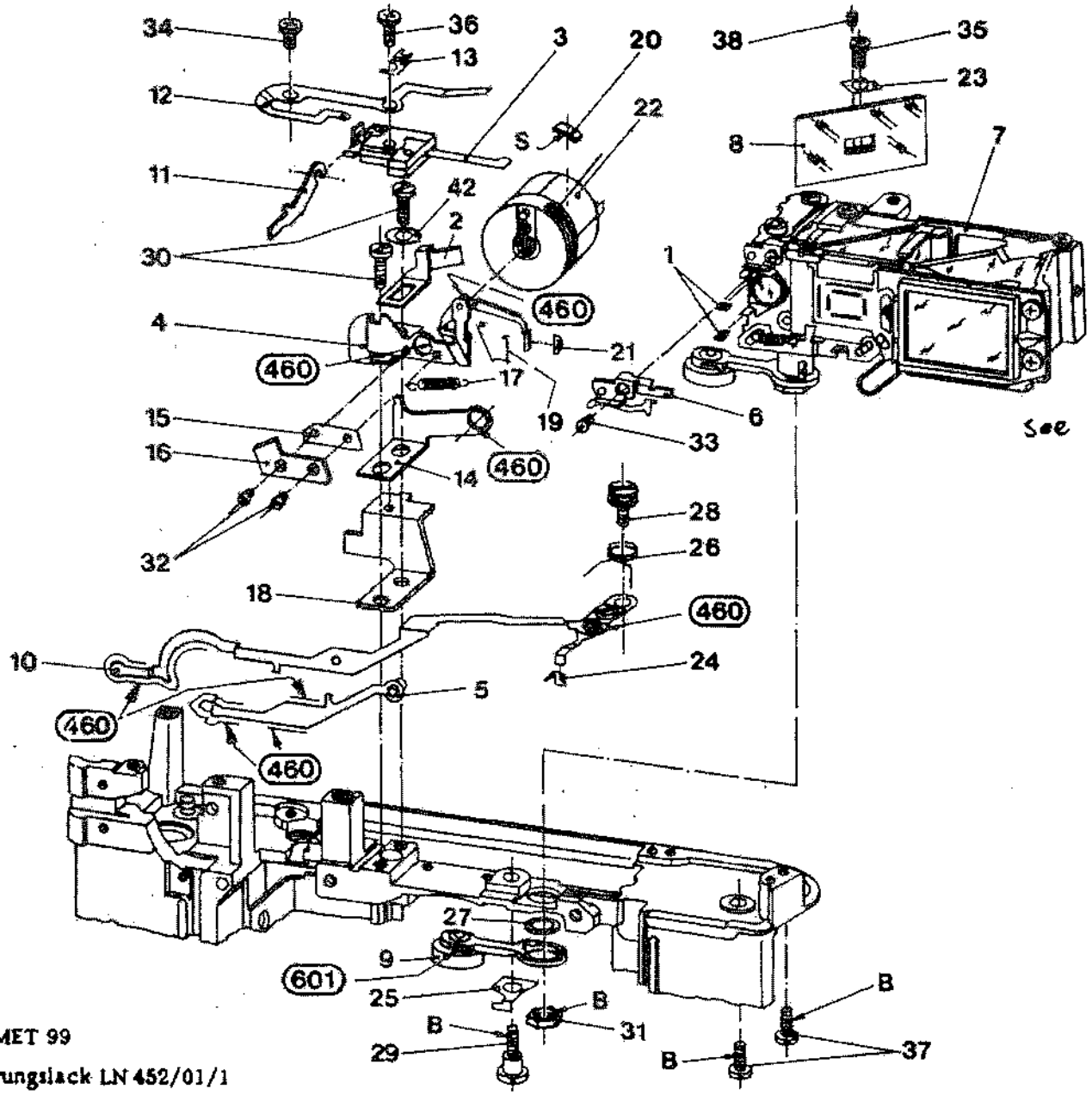

S = SICOMET 99

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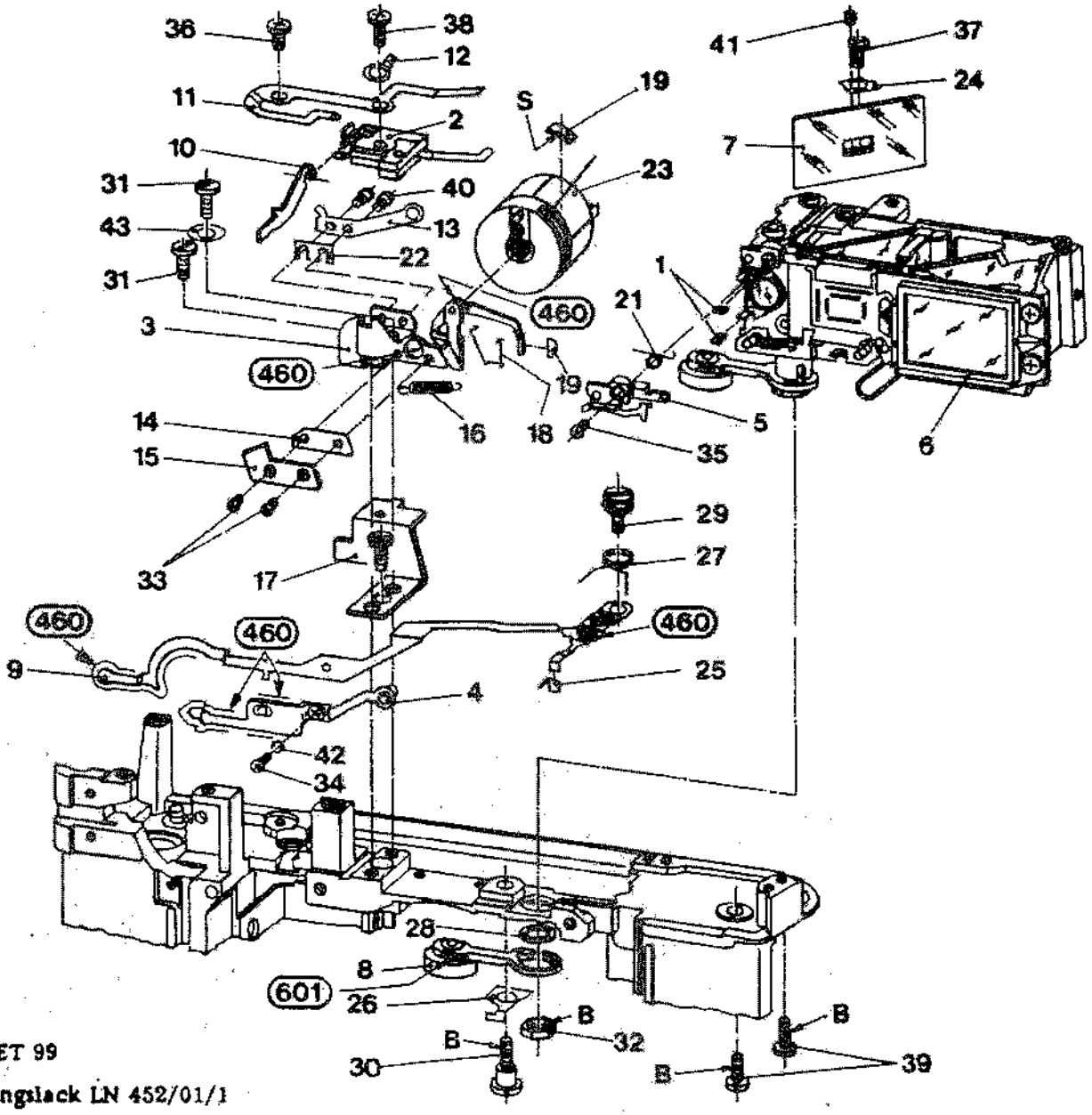

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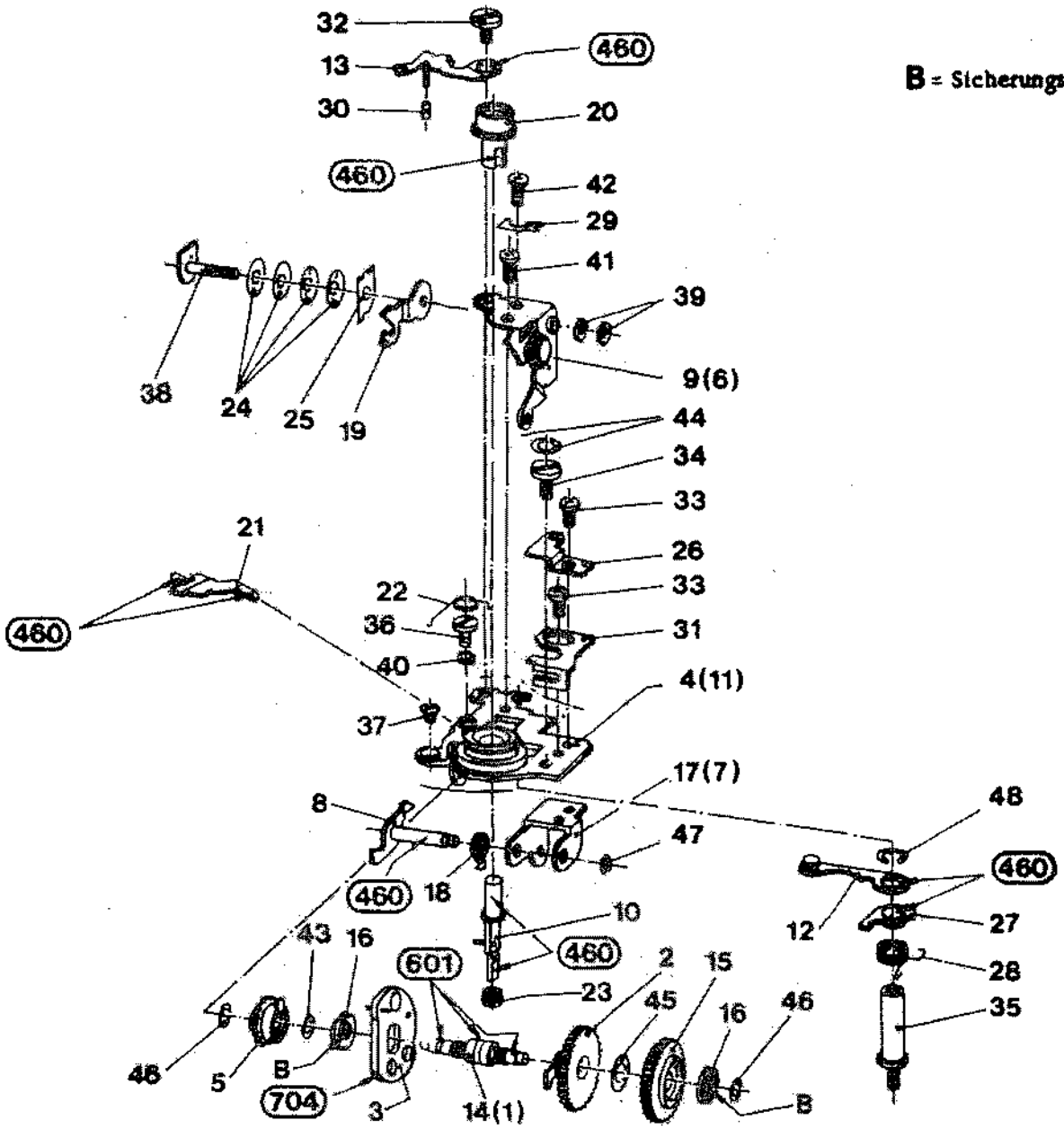

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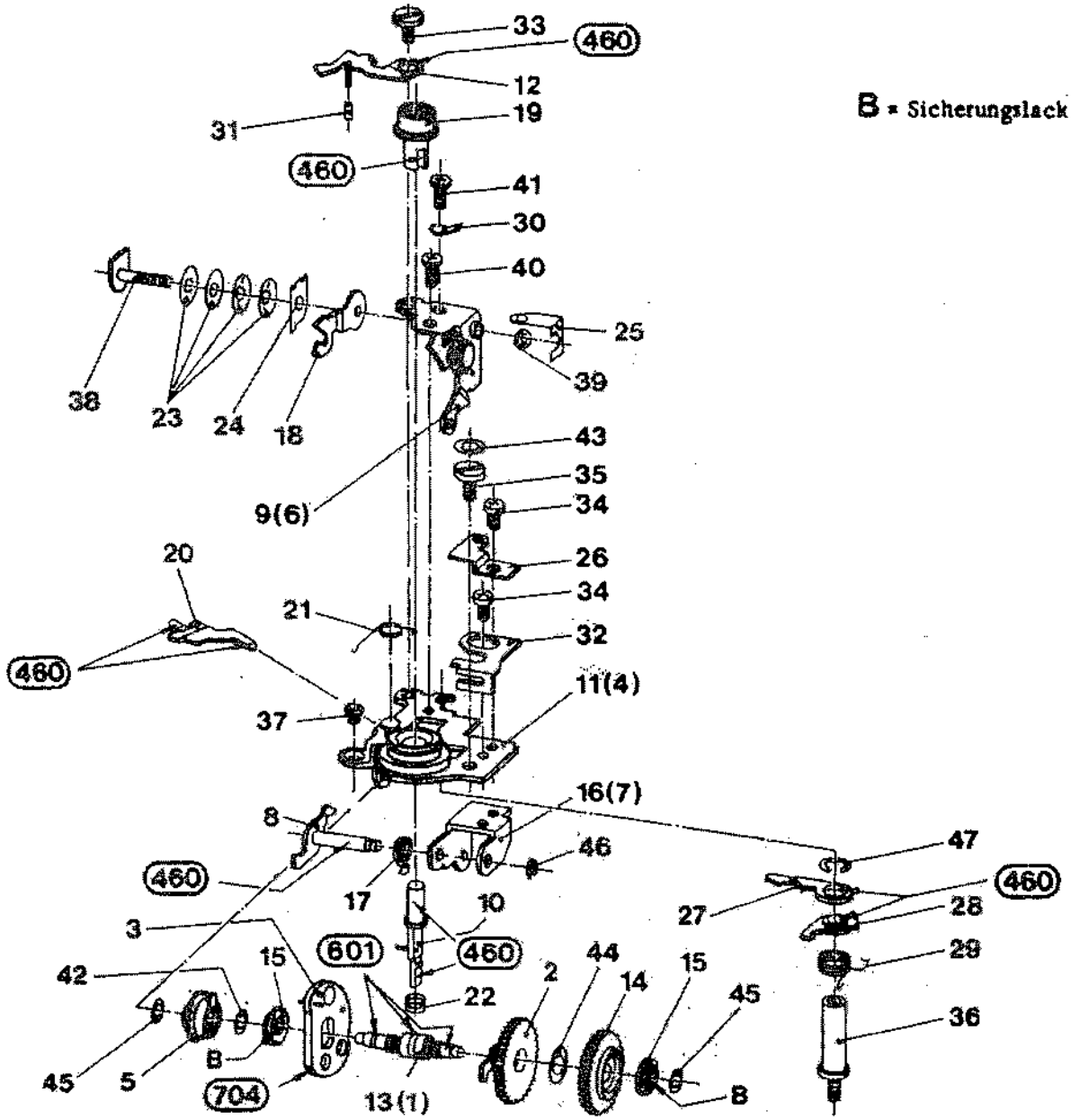
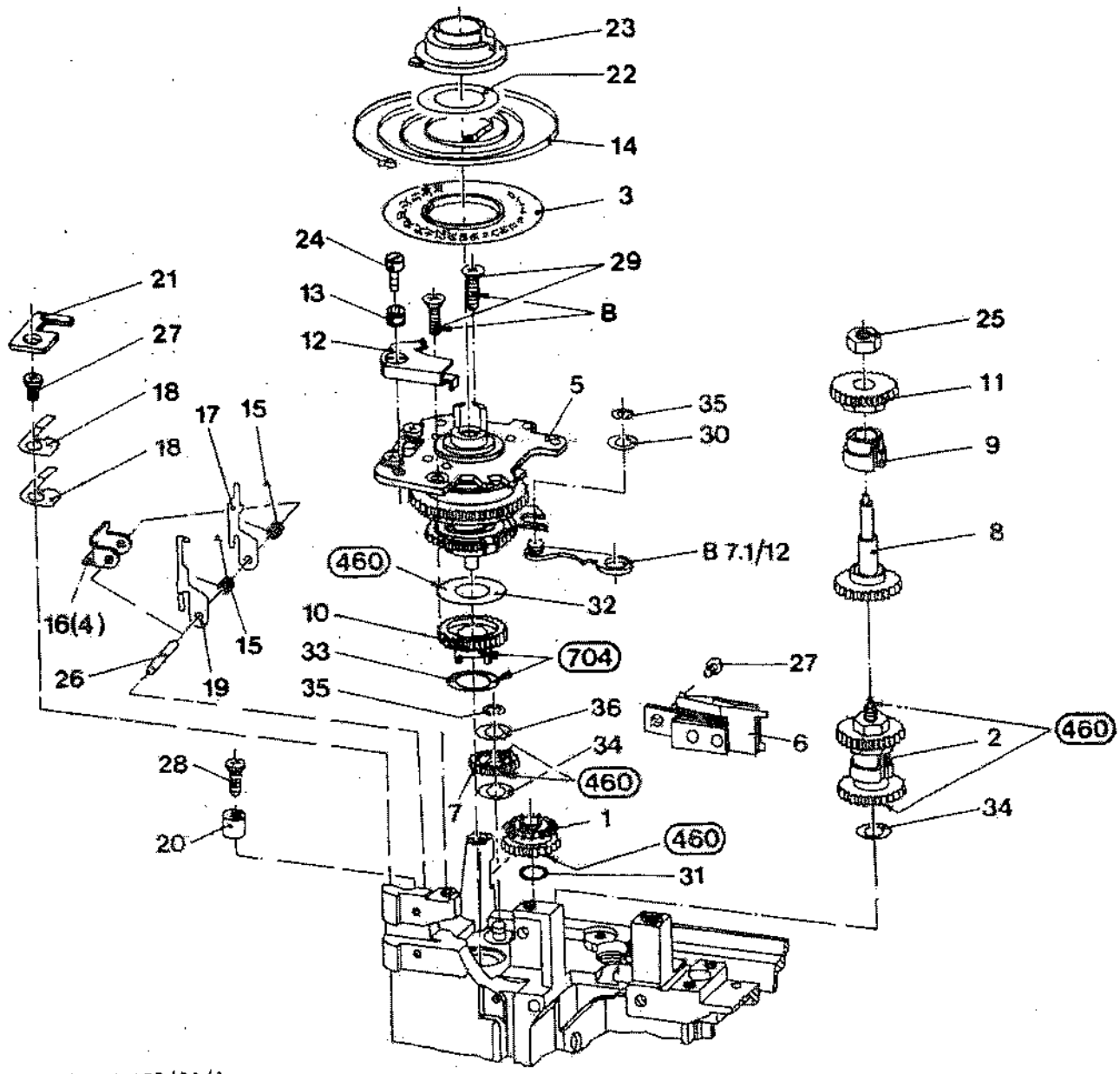
B = Sicherungslack LN 452/01/1





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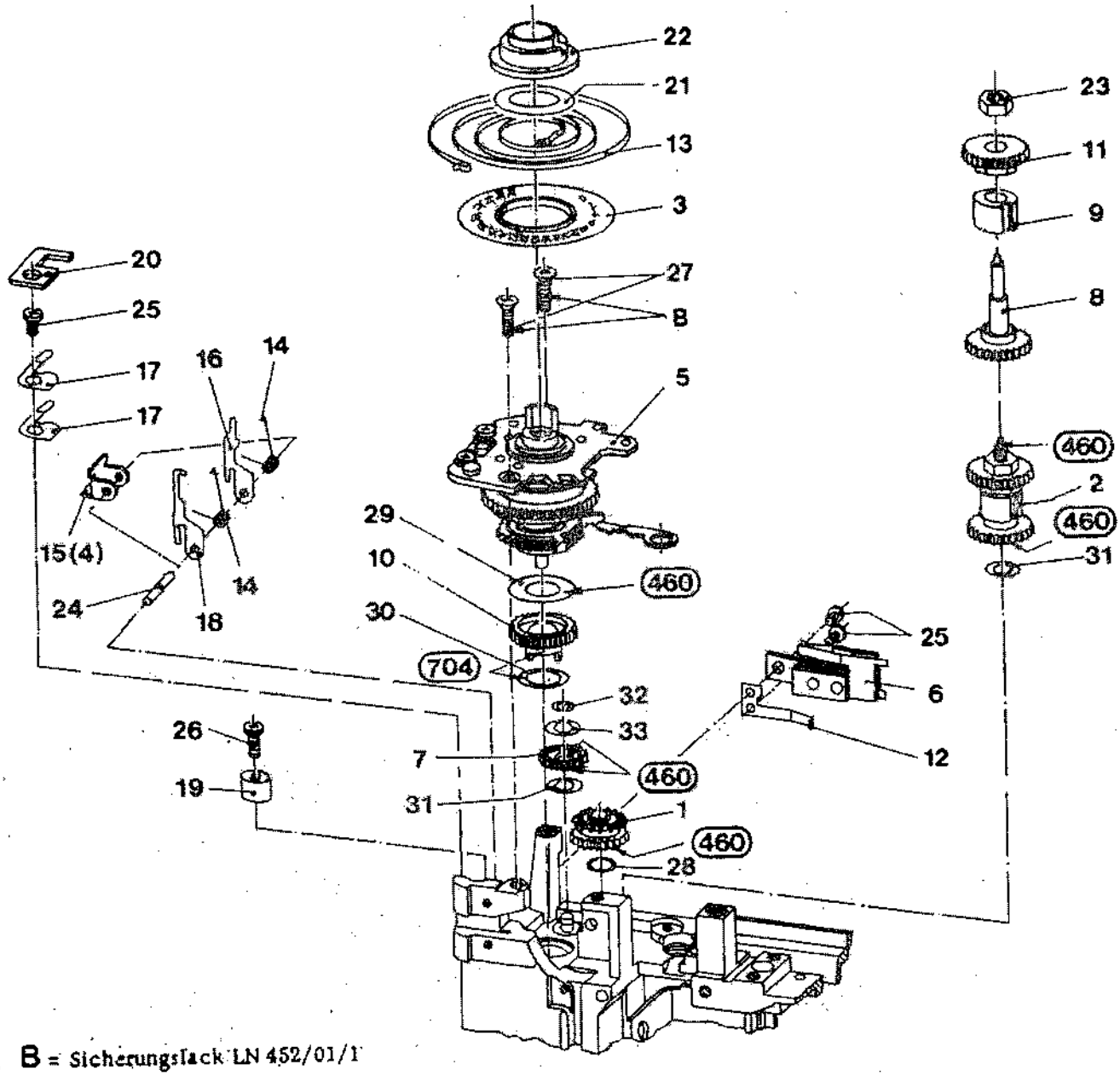

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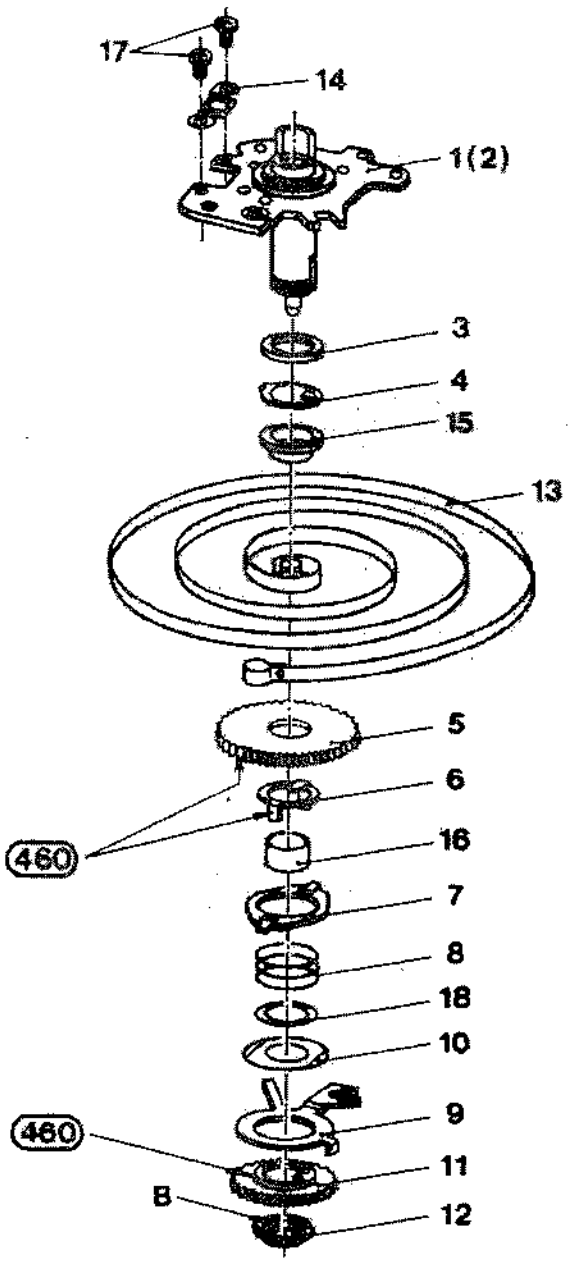

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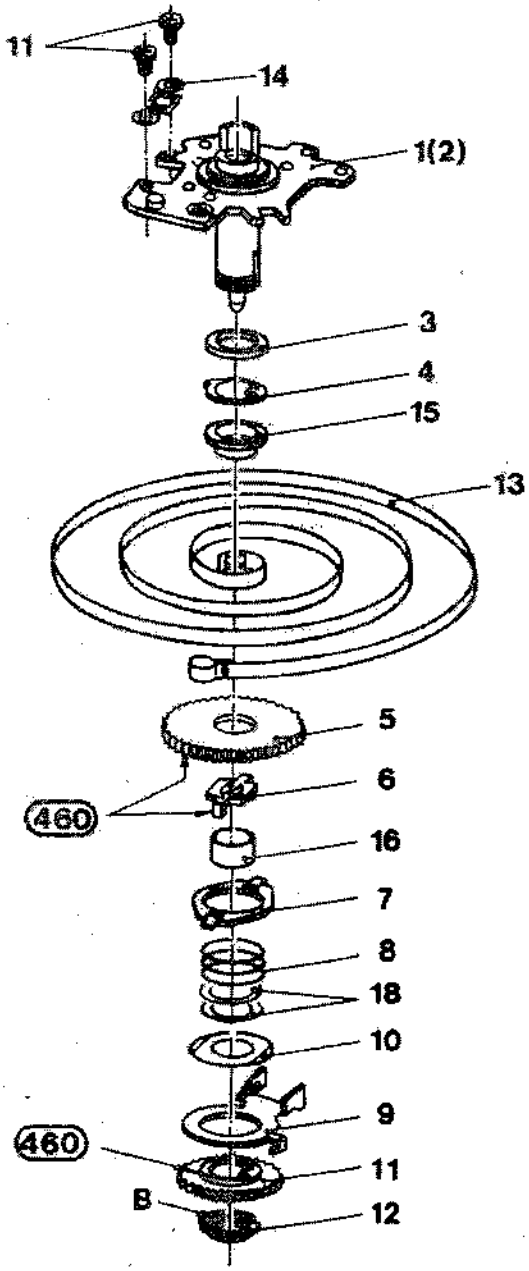

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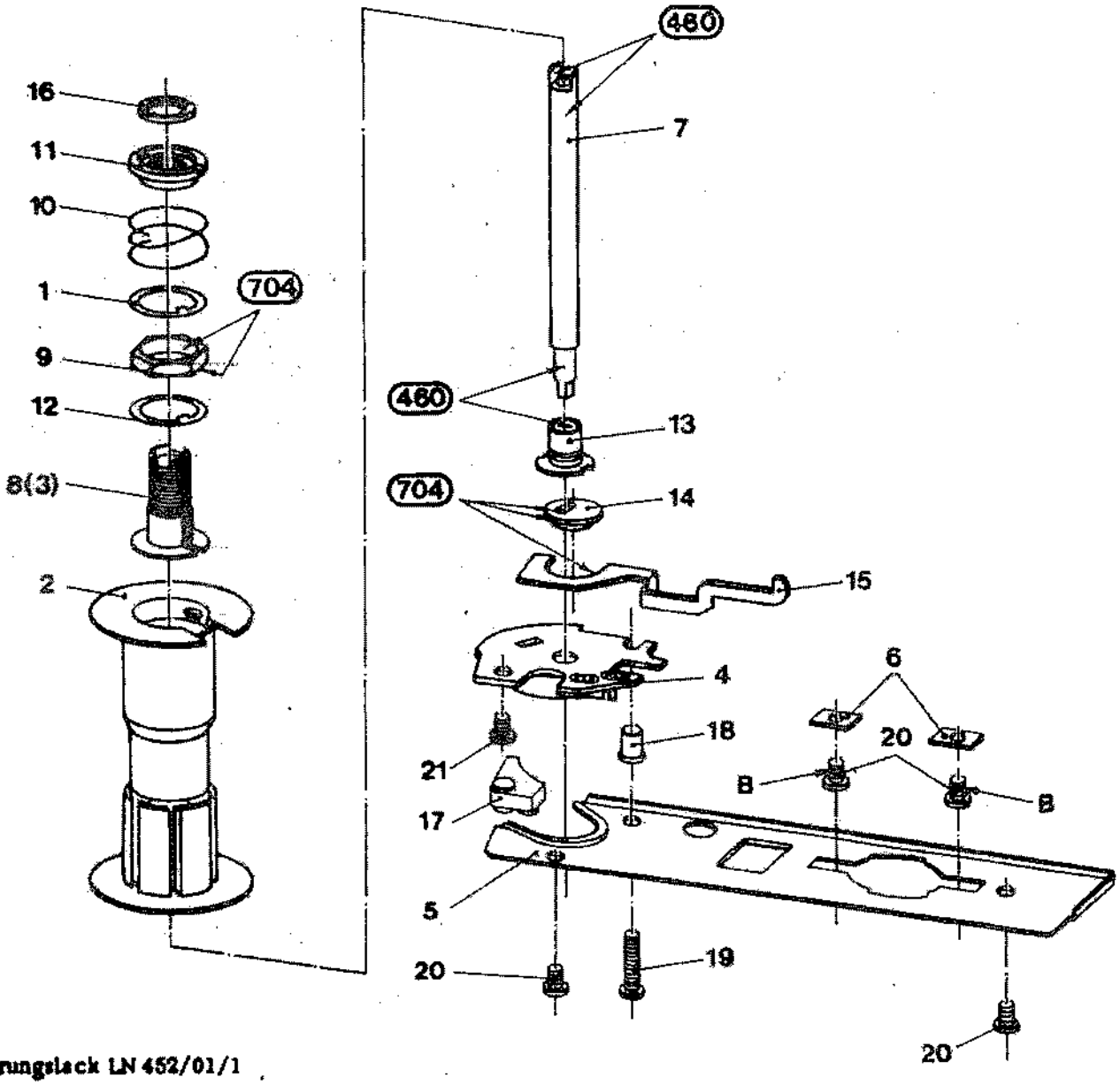

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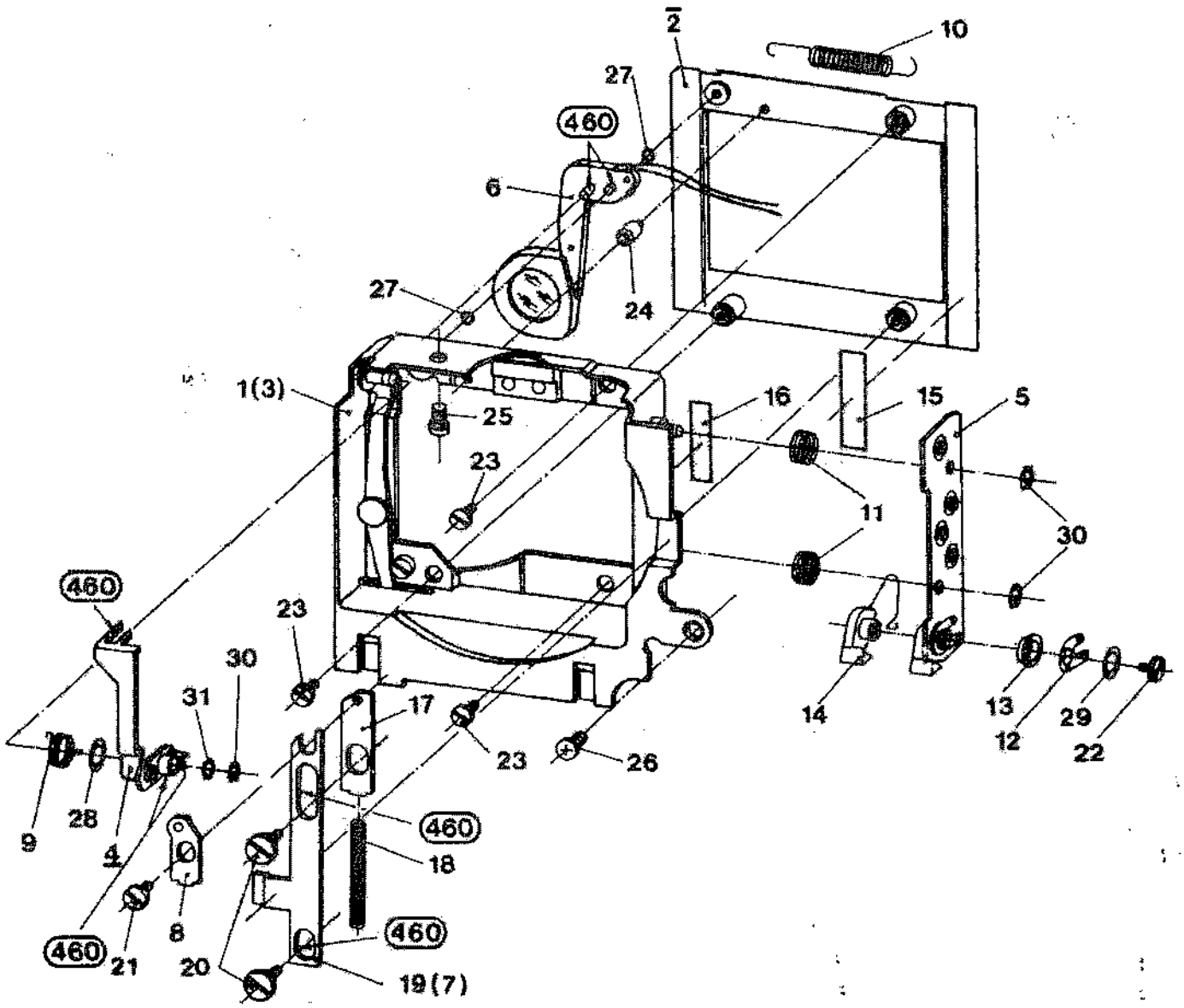
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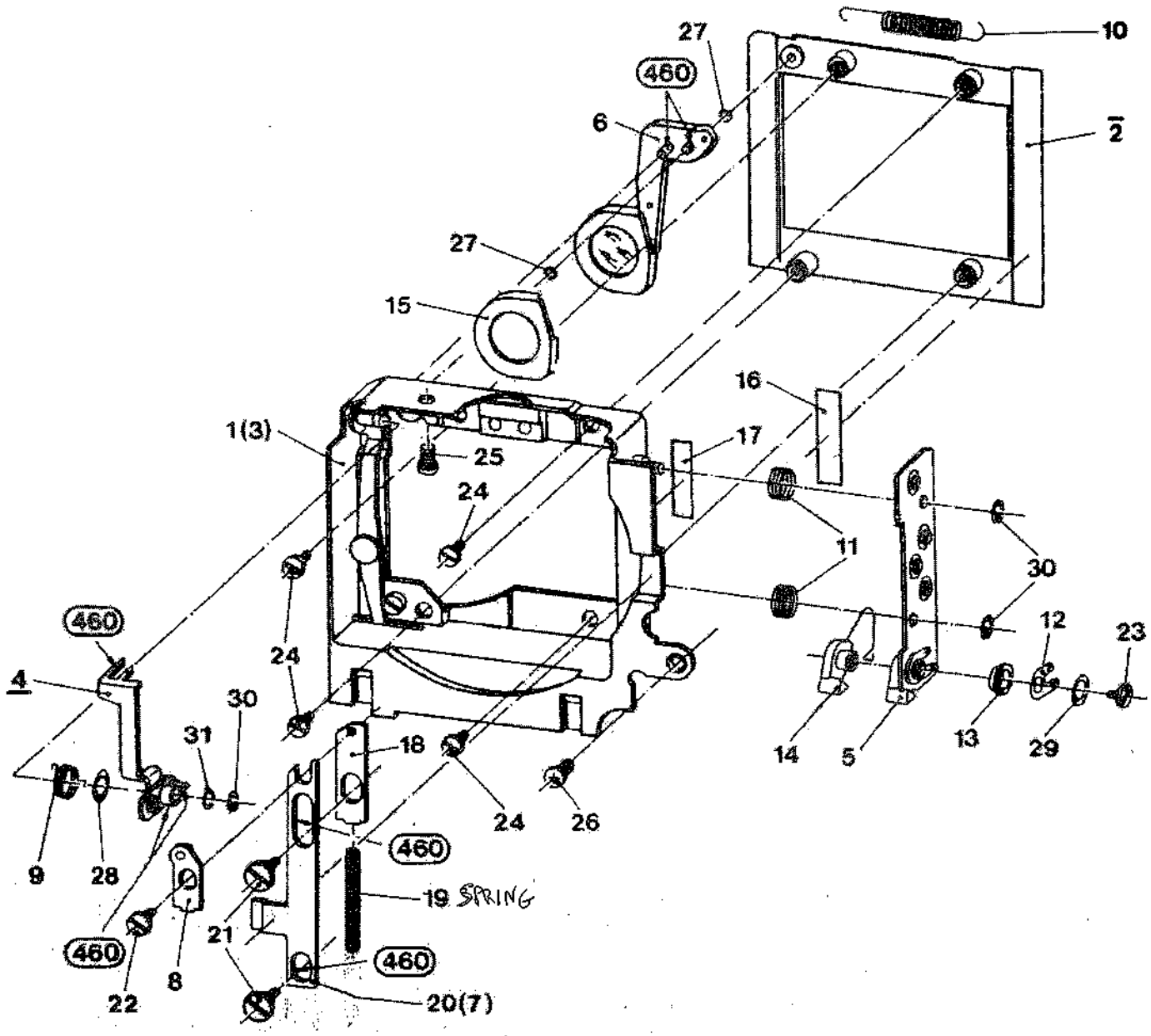
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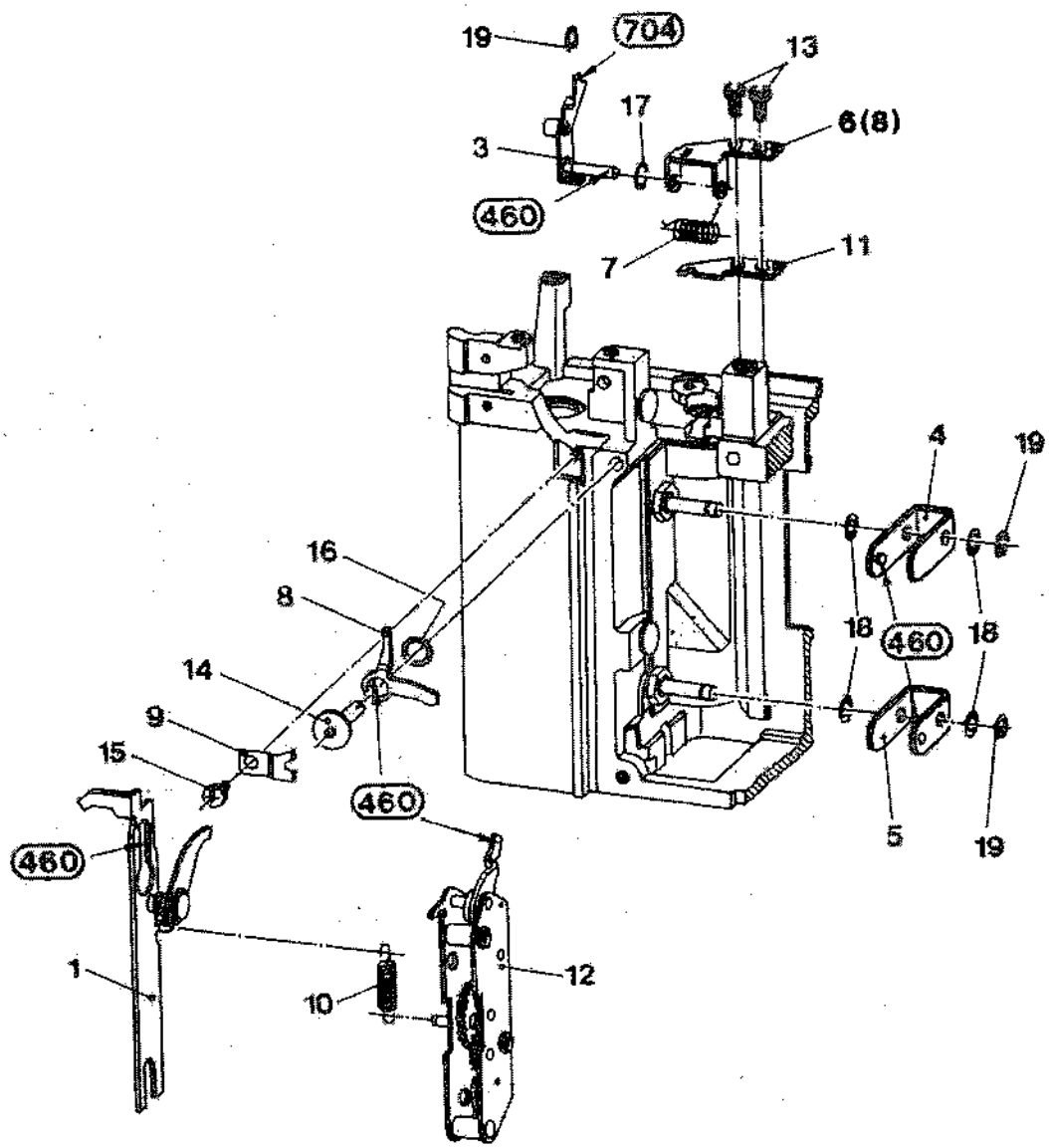
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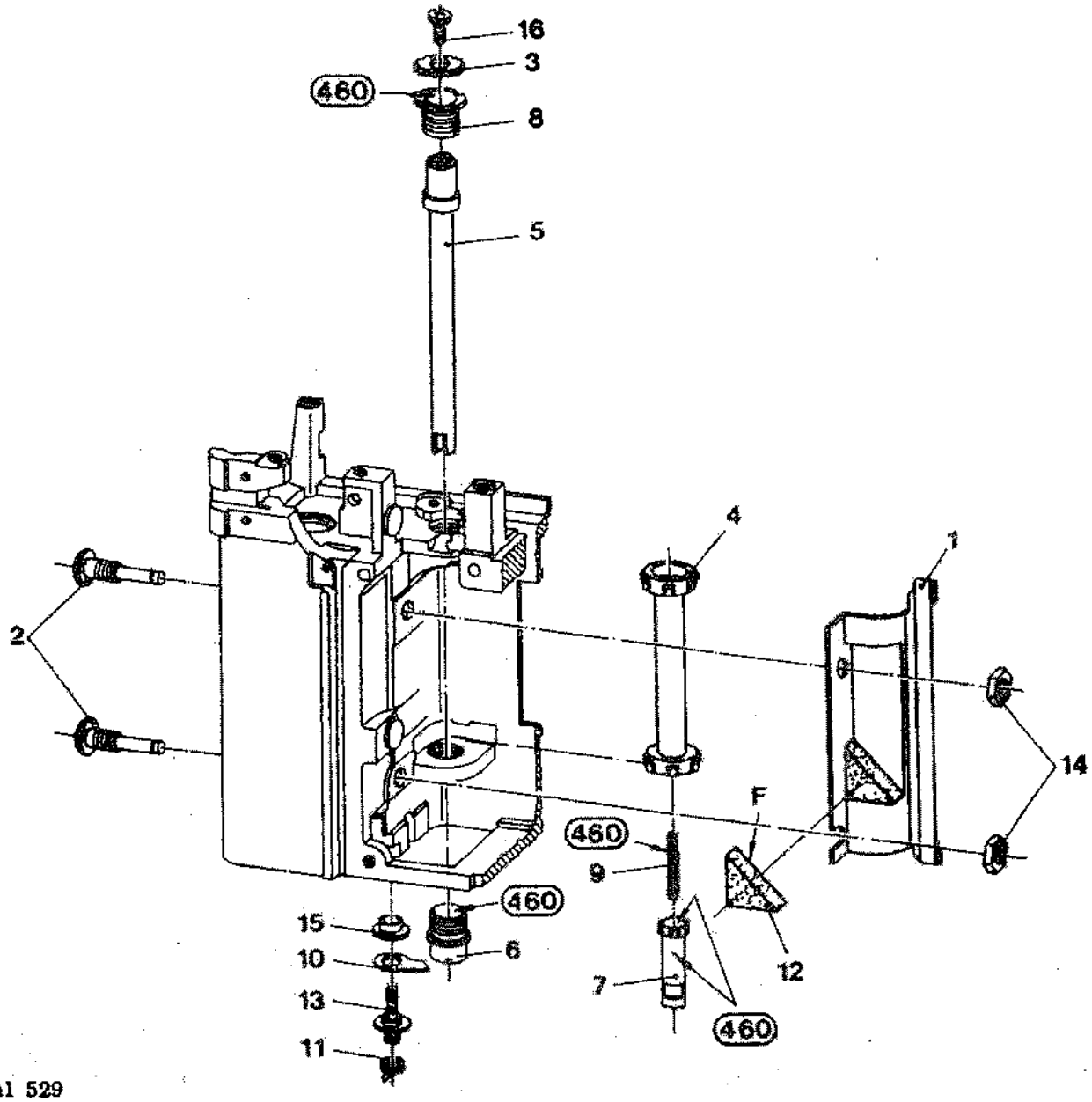

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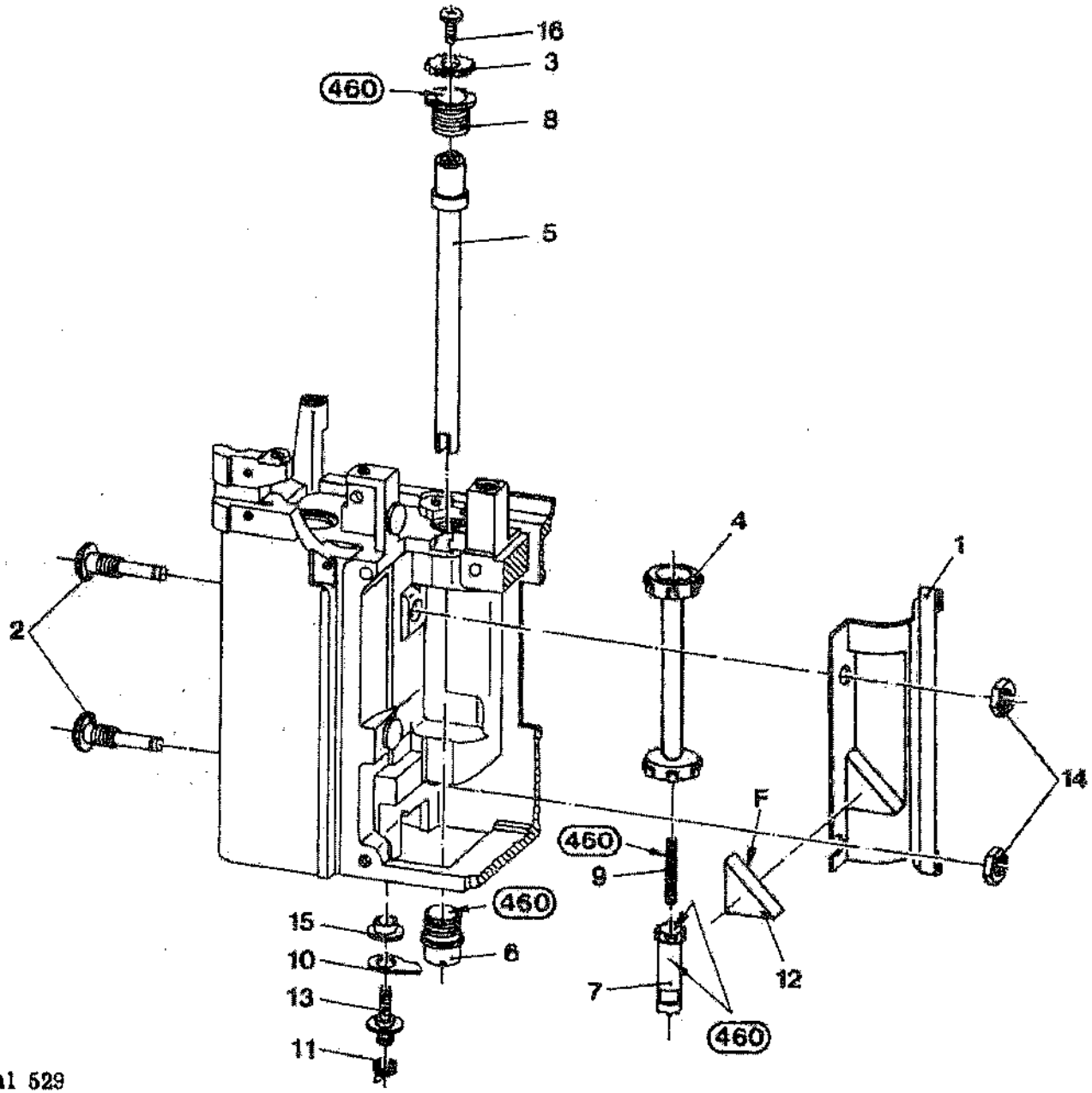

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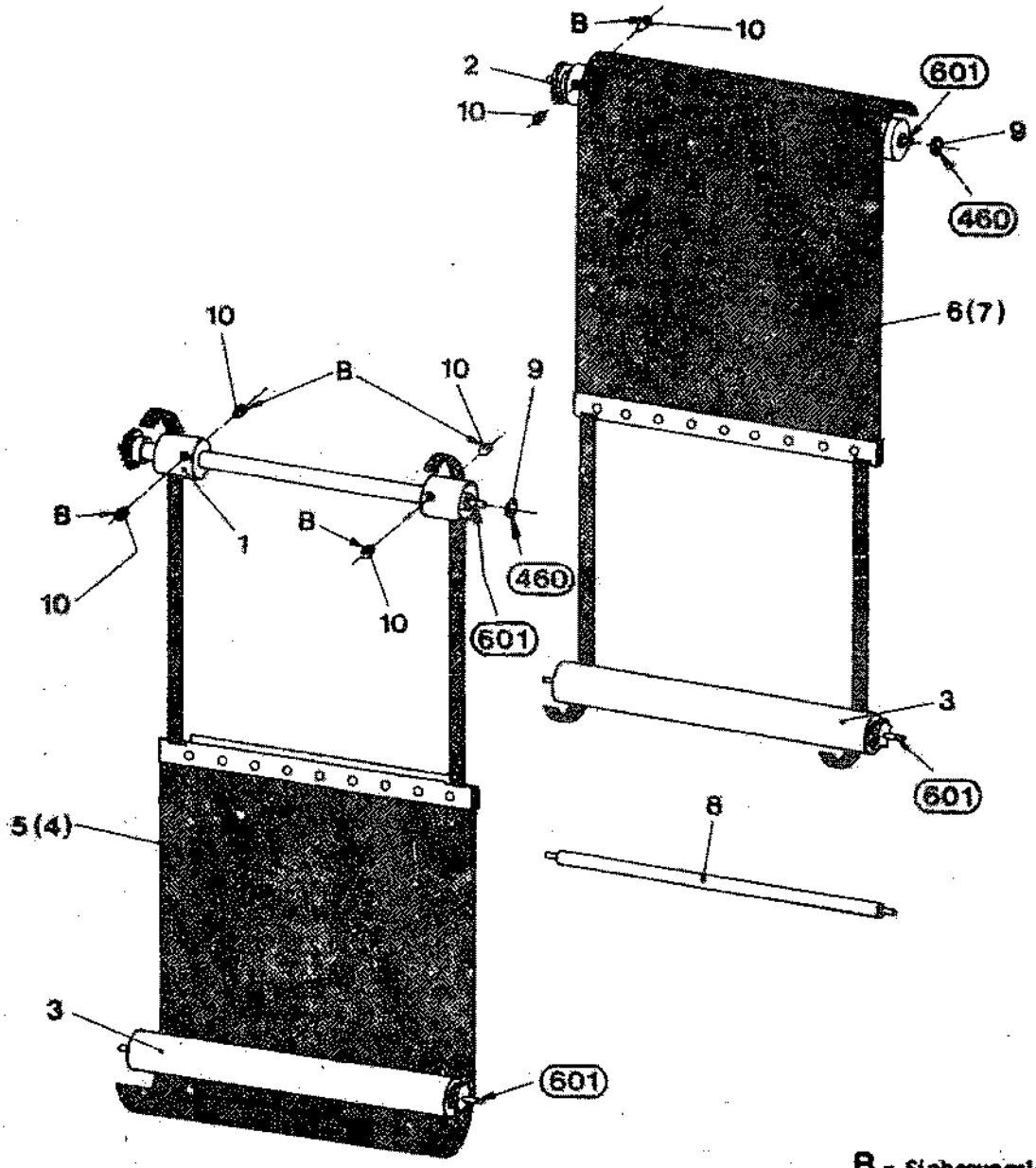

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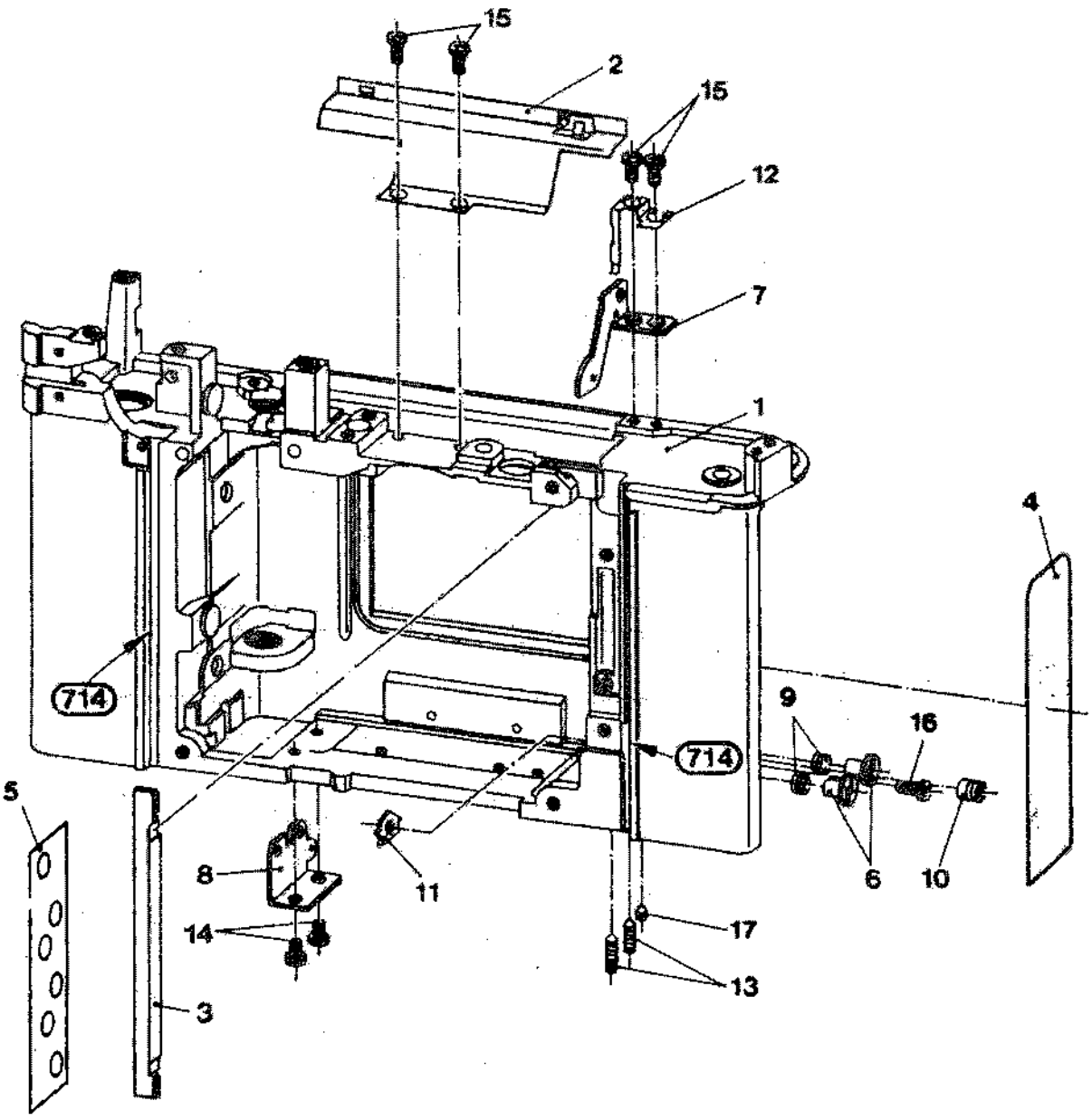
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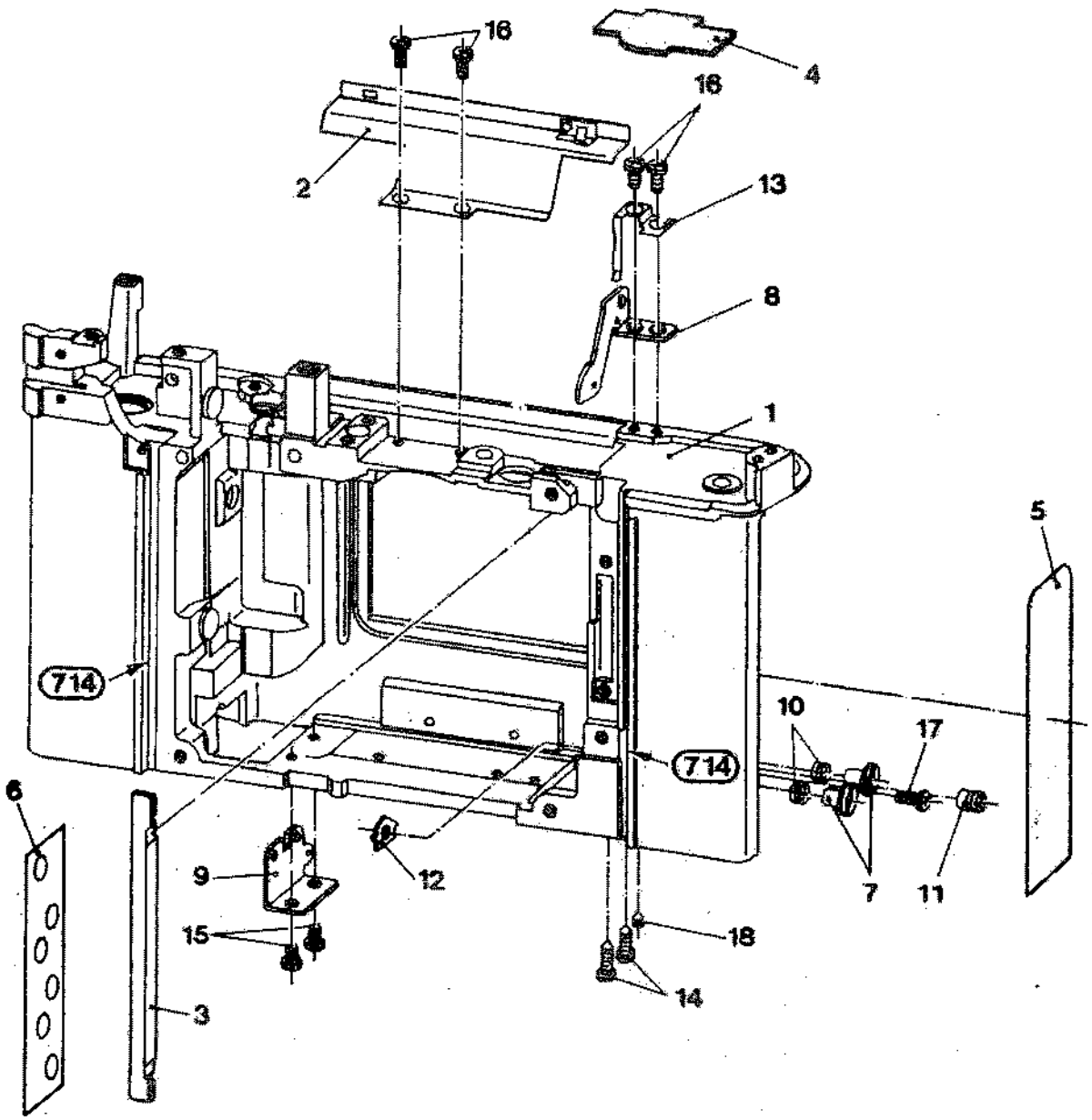
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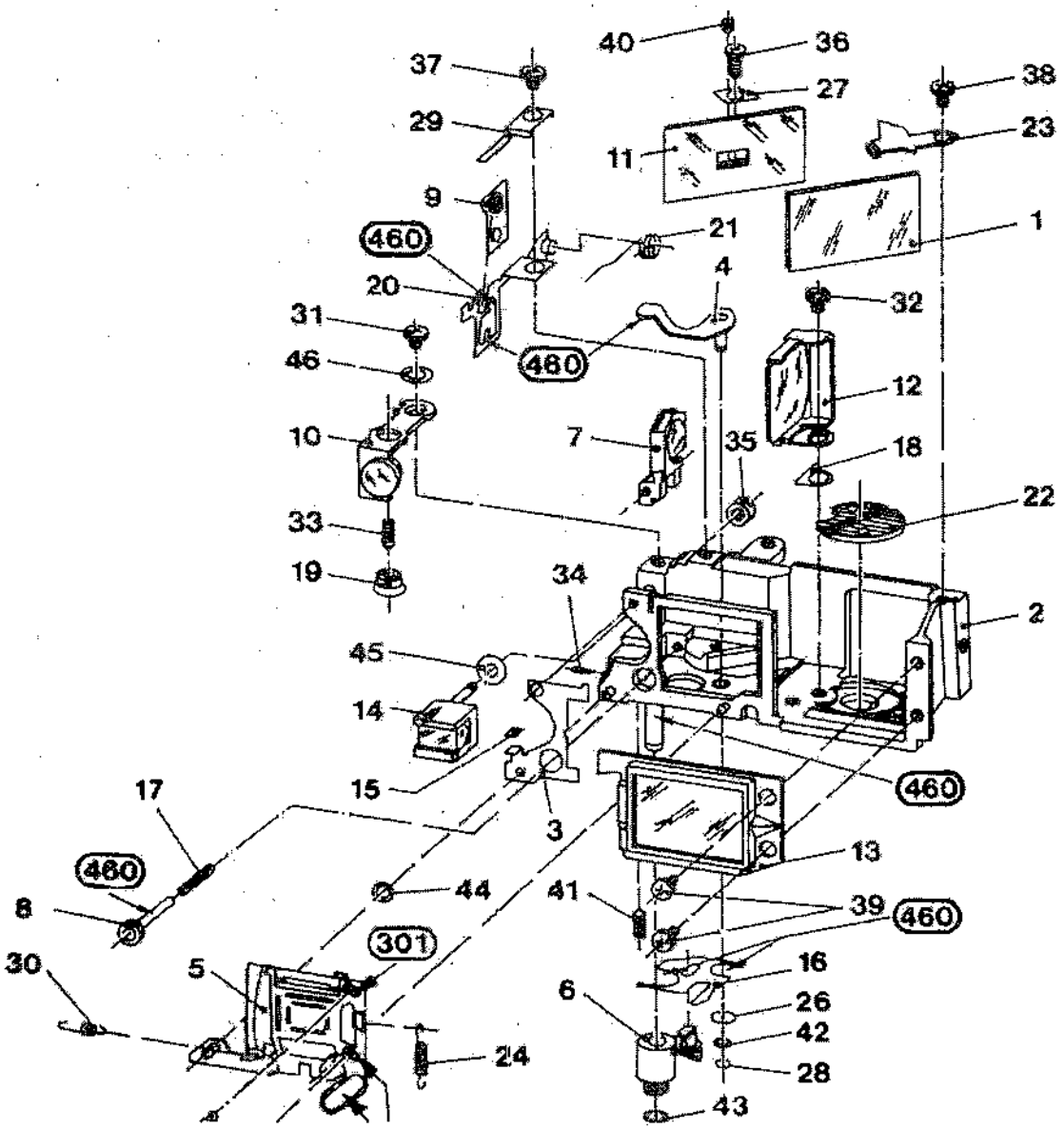
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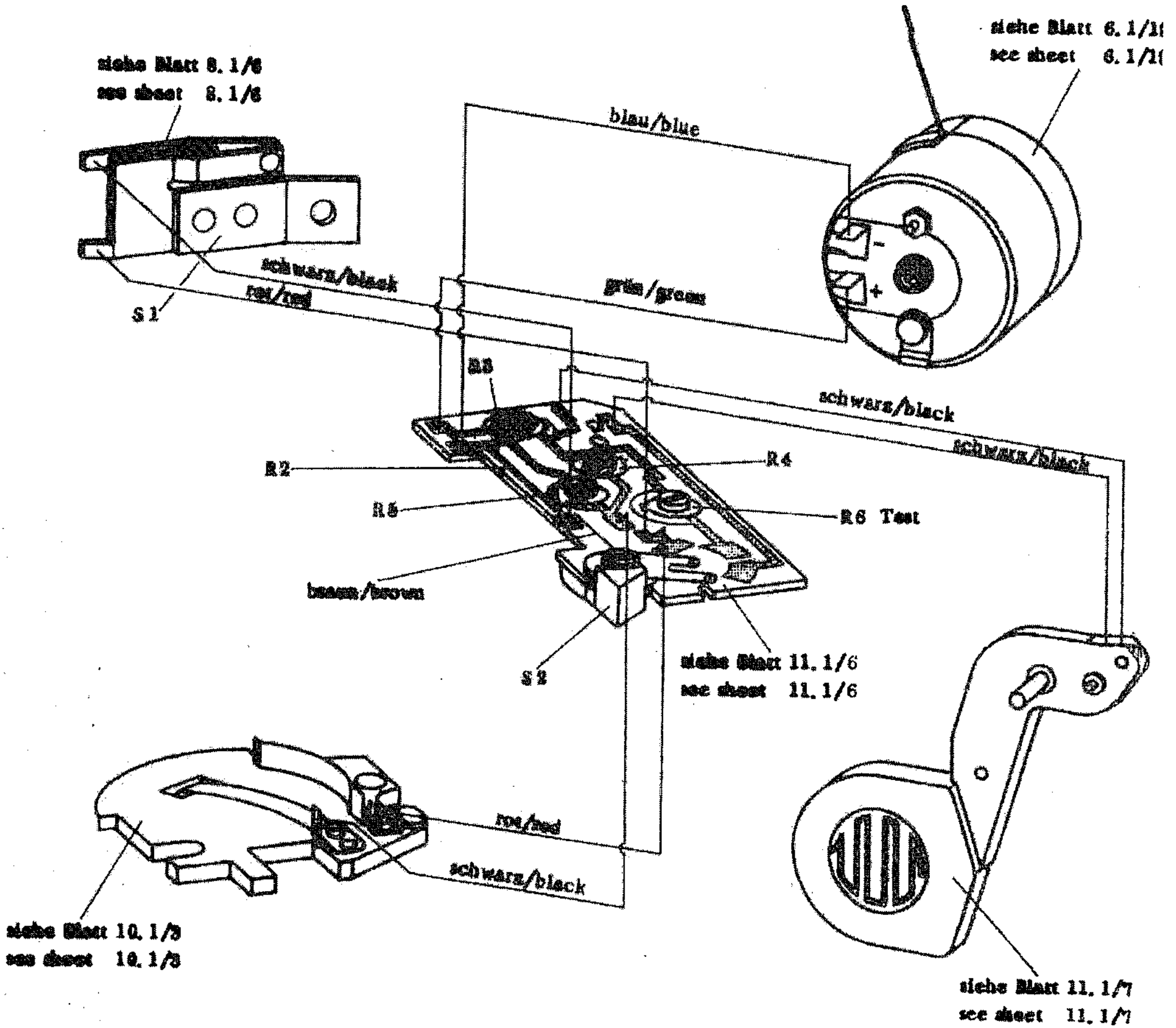
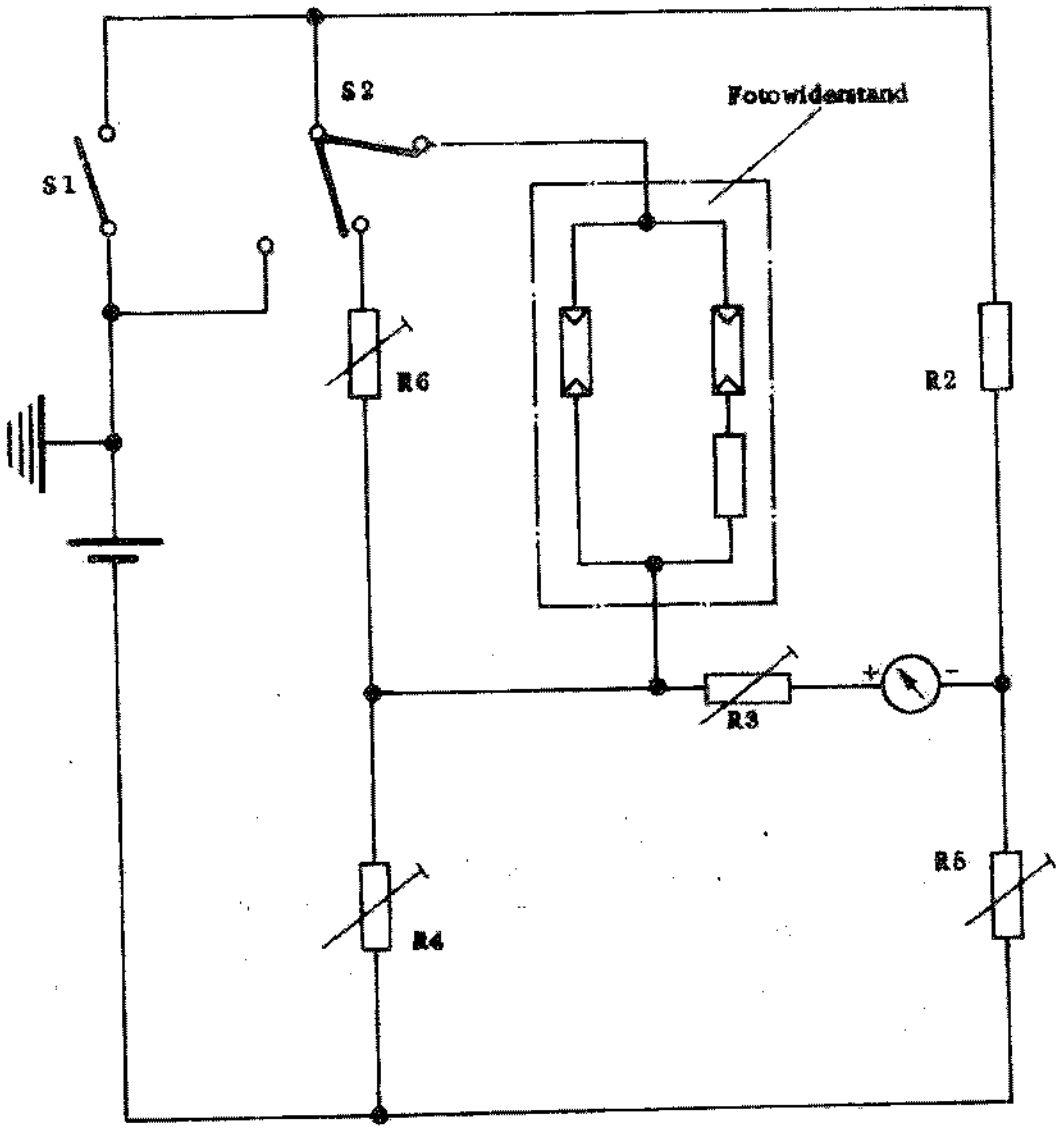
Verdrahtungsplan / wiring diagram





S1 - Hauptschalter / main switch
S2 - Batterie-Test / battery-test

Removing the top plate ____ 1

Interchange of the contact screw 1.1/8 and the clamping springs 1.1/7 of the fixing clamp ____ 1

Mounting the front plate, Checking the height and autocollimation ____ 2

Checking the distance and parallelism of stop ring and film channel ____ 2

Lowering the supports of the front plate ____ 3

Removing and mounting the film spool ____ 4

Setting the friction ____ 4

Setting the film transport sprocket ____ 5

Exchanging the winding mechanism ____ 7, 8

Exchanging the gearing ____ 9, 10

Exchanging the shutter blinds ____ 11

Exchanging the measuring device ____ 13

Checking of the warning mark ____ 14

Setting the test pointer ____ 14

Mounting the guide lever ____ 14

Adjustment of the exposure indicator ____ 14

Adjusting the exposure meter ____ 15, 16

Dismantling and mounting the rangefinder ____ 17

Adjusting the rangefinder ____ 17

Height setting ____ 18

Lateral setting ____ 18, 19, 2

Parallax compensation ____ 21

Adjusting the measuring field ____ 21

Viewfinder masks ____ 22

Testing and setting the shutter speeds ____ 23, 24

Setting the brake ____ 25

Checking the synchronization ____ 26

Testing the current flow resistance ____ 26

Testing the insulating resistance ____ 26

Checking the correct contact position ____ 26

Test data - flash synchronization, shutter ____ 27

Test data - shutter release, film wind, alignment ____ 28

Test data - exposure meter, viewfinder ____ 29

Test data - rangefinder ____ 30

Correction of faults - measuring device does not function ____ 51

Correction of faults - shutter blocked ____ 52

Correction of faults - shutter does not close at long exposure times ____ 54

Removing the top plate

The following tools are required:

Spanner	400-071.204-203 W 1
Spanner	400-071.302-702 W 1
Allen key	400-071.930-201 W 1

Sequence of operations

Unscrew screw 1.1/14 with spanner 400-071.302-702 W 1, remove the washer 1.1/12 (convex side facing downwards) and remove the winding lever 1.1/2. Unscrew the screw 1.1/22. Unscrew the collar 1.1/11 with spanner 400-071.204-203 W 1. Ensure that the release button does not jump from its guide.

Unscrew the two screws 1.1/21 and remove the carrying eyelet 1.1/5. Carefully remove the top plate. Ensure that the spacing ring 1.1/20 is not lost. Push nipple 1.1/9 out of the cover plate. To enable further to be carried out the camera, the sleeve 1.1/11 and the winding lever 1.1/2 are preferably replaced on the camera.

Interchange of the contact screw 1.1/8 and the clamping springs 1.1/7 of the fixing clamp.

Unscrew the nut 1.1/25 with the allen key 400-071.930-201 W 1, remove one washer 1.1/23, 1 insulating disc 1.1/24, and the contact screw 1.1/8.

Disengage the insulating piece 1.1/6 by pressure from the inside of the top plate and remove it. Remove the two clamping springs 1.1/7. Reassembly is carried out logically, in the reverse order.

Mounting the front plate
Checking the height and autocollimation

Tools, appliances, and measuring instruments

1. Measuring instruments for zeroing (see survey sheet for LEICA zeroing)
2. Turning atachment (see survey sheet for turning atachments)
3. Autocollimation telescope 42-582.01 Z1 W4
4. Head counter sink 2,2 x 5,3 LN 144 30
5. Fixing pin 42-253.01 Z1 W84

Sequence of operations

Top plate (see Repair Instructions page 1.1) and camera back have been removed.
Place the front plate 5.1/3 on main body and firmly tighten the four screws 5.1/12

Checking the distance and parallelism of stop ring and film channel

Set the shutter speed dial at "B", screw the fixing pin 42-253.01 Z1 W84 in and release the shutter. Place the c .nera on the measuring plate 42-253.01 Z1 A70-12 and measure the distance between front ring and measuring plate with the combination of the dial gauge, flange 42-655.01 Z1 A8-8 and pin 42-253.01 Z1 A70-4. The dial gauge must first be zeroed with the aid of the slip gauge 42-253.01 Z1 A70-4 whose height is 27.95 mm. The tolerance is ± 0.02 mm

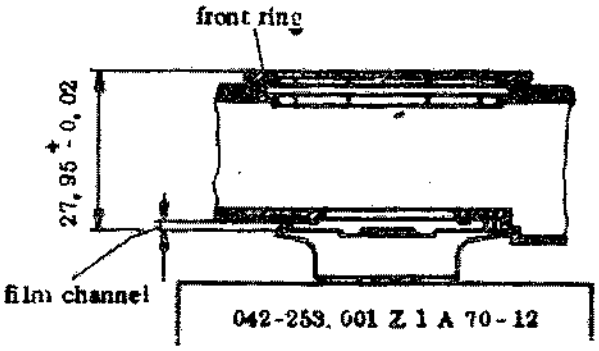


Fig. 1.1

Replace the dial gauge combination with the autocollimation telescope 42-582.01 Z1 W4 and check parallelism of front ring and measuring plate. Deviations of up to 1 line width are admisible.

Correction is possible by the insertion of spacers 5.1/9 and 5.1/13 or by lowering of the supports of the front plate, if necessary unilaterally. Any spacers should be secured with securing varnish "B".

Lowering the supports of the front plate

For heightening the complete front plate a combination of the turning atachment (see survey sheet) consisting of: 42-253. 01-535 W 15-1/5, 42-253. 01-535 W 15-3, 42-253. 01-595 W 15-2 and M 10 DIN 6303 (see Fig. 2. 1) is recommended. Clamp the head counter sink 2. 2 x 5. 3 LN 14430 in a column type drilling machine and lower the supports of the front plate according to the result of the measurement.

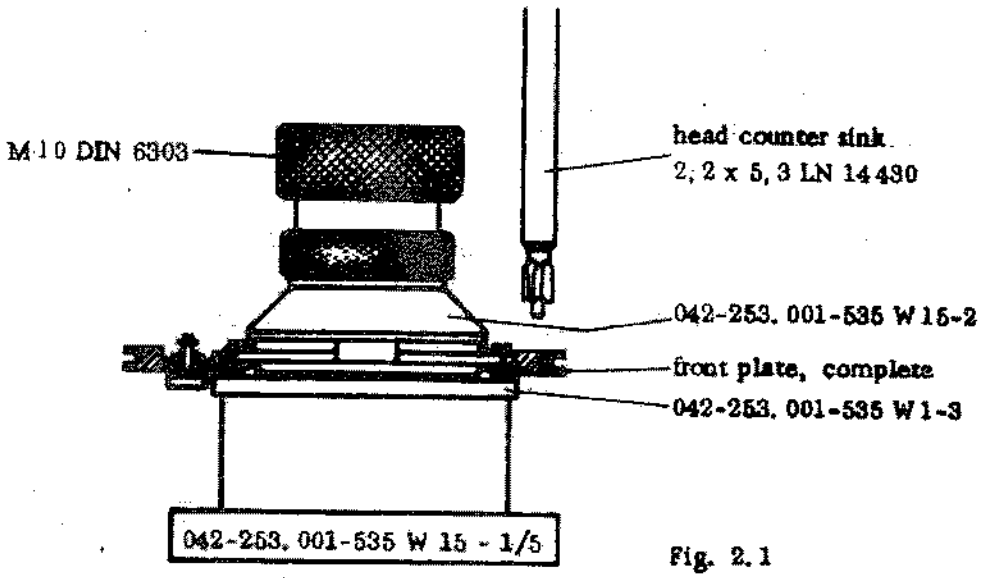


Fig. 2. 1

The range finder must be checked after the front plate has been mounted.

Removing and mounting the film spool

The following tools are required:

1 Spanner	400-071.304-001	W1
1 Spanner	400-071.305-801	W1

Sequence of operations

The coverplate 10.1/4 has been removed. Unscrew 1 screw 10.1/19 release screw 13.1/13 through about 3 turns. Pull the plate 10.1/3 out to the side. Lift the slider 10.1/14 from the eccentric 10.1/13 (do not take it out) and remove the eccentric 10.1/13. Unscrew the bearing 10.1/12 with spanner 400-071.304-000 W1 and pull out the winding spindle 10.1/6.
With the drive spindle 8.1/5 mounted, cock the winding lever so that the film spool 10.1/1 can be taken out.

Assembly is carried out logically in the reverse order.

Setting the friction

Release the securing ring 10.1/15 with spanner 400-071.305-801 W1 and set the securing ring 10.1/11 so that the friction will be 320 ± 40p.

The friction of the spool is preferably checked in the mounted state by the insertion of a piece of film; this is wound through about 5 turns and the friction measured with a contactor or a spring balance. After the friction has been set the securing ring 10.1/15 must be again checked with the securing ring 10.1/11

Setting the film transport sprocket

The following tools are required:

Spanner	400-071.301-201 W 1
Spanner	400-071.930-601 W 1

Sequence of operations

Winding mechanism, film spool, sprocket wheel and drive wheels are assembled. Hold the gear wheel 8.1/11 in position with spanner 400-071.301-201 W 1 and release the nut 8.1/23 with spanner 400-071.930-601 W 1. Wind the winding lever and hold it in position against the stop. Ensure that the lever 7.1/27 engages in the pressure piece 8.1/9. If necessary rotate the pressure piece. Set a tooth of the sprocket wheel at its highest point by rotating it towards the film window (the tooth may be stopped a little before the highest point, but not beyond it). Rotate the gear wheel 8.1/11 anticlockwise against the stop, hold it in position with spanner 400-071.301-201 W 1 and tighten the nut 8.1/23 with spanner 400-071.930-601 W 1

Check: Disengage lever 7.1/27 and wind the winding lever. The lever 7.1/27 must engage when a tooth of the sprocket wheel is at the highest point under tension. Insert an exposed film and check whether the film windo is situated evenly between the perforations. Pressure on the film should preferably be exerted with the film pressure plate. The film position can be accurately checked with the aid of pencil lines from the inside of the main body.

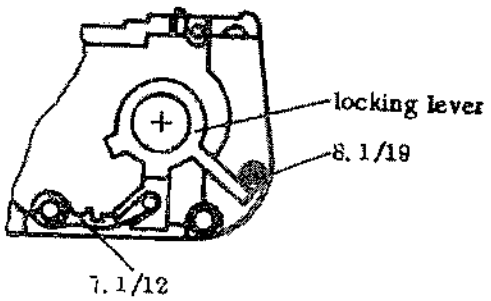
Exchanging the winding mechanism
(The shutter is mounted)

Sequence of operations

The top plate has been removed (see Repair Instructions page 1.1)
Wind and remove the winding lever. Remove the stop disc 8.1/21, unscrew the grub screw 8.1/22 and remove the stop angle 8.1/12. Unscrew a screw 7.1/32 and remove the switch lever 7.1/13. Slightly raise the counting disc 8.1/3 and rotate it clockwise so that the tension of the counting mechanism spring 8.1/13 is relieved. Unhook the spring and remove it together with the counting disc. Unscrew two screws 9.1/17 and remove the guide piece 9.1/14. Unscrew a screw 6.1/25 and a screw 6.1/30 and remove the cable clamps 6.1/10, the contact spring 6.1/9, and the contact piece 6.1/1. Replace the screw 6.1/25 so that the bearing angle 7.1/6 does not become displaced thereby releasing the shutter blind rollers.
Unhook and remove the leg spring 7.1/22. Unscrew screw 8.1/25 and remove the main contact 8.1/6 (do not unsolder it).
Remove 1 c-clip 8.1/34 and 1 disc 8.1/31. Unscrew two screws 8.1/27 and remove the winding mechanism.

Turn the bevel gear 8.1/1 anticlockwise against the stop and then clockwise through about 1 tooth division. Ensure that the slider 7.1/21 is still in its correct position. Rotate the gear wheel 9.1/5 of the winding mechanism so that the carrier 9.1/7 engages and is about 0.5 to 1 mm before the stop. Carefully mount the winding mechanism. Ensure that the arresting lever 9.1/9 is in the position shown in Fig. 3.1. During the mounting of the drive spindle the slider 7.1/21 must be slightly raised so that it engages in its guide in the plate of the winding mechanism. Firmly screw the winding mechanism home and mount the winding lever. Insert the leg spring 7.1/22.

Fig. 3.1



Release and wind the shutter. Ensure that the lever 7.1/8 engages at the end of the winding process and that a slight excess lift is still available of at most 1 tooth division. If necessary mounting of the winding mechanism must be repeated until the engagement of the lever 7.1/8 is corre .
If the excess lift is too large, the bevel wheel 8.1/1 must be set closer to the stop, if the lever 7.1/8 does not engage, further away from the stop.
With excessive extra lift there is the danger that the brake action will be excessive and that the shutter can therefore not move far enough.
The engagement of the lever 7.1/27 in the pressure piece 8.1/9 must also be checked. Further assembly is carried out logically in the reverse order of dismantling.

After the assembly of the counting disc check its perfect function. If the counting mechanism fails to count, the reason is that the stop face of the gear wheel 9.1/5 is too close to the carrier 9.1/7. Correction is possible only by removal of the winding mechanism and appropriate adjustment of the gear wheel 9.1/5.

When the shutter is unwound, proceed as follows:

By anticlockwise rotation of the winding spindle 10.1/6 swing the photo resistor into the picture window. Rotate the winding spindle clockwise as far as it will go and align the double edge to the longitudinal axis of the camera. Wind the shutter by rotating the gear wheel 7.1/15 (first blind) until the lever 7.1/8 engages.
Rotate the sprocket wheel so that the lever 7.1/27 engages in the pressure piece 8.1/9. Carry out further adjustments for the mounting of the winding mechanism as previously described.

Exchanging the gearing

Sequence of operations

The top plate (see Repair Instructions page 1.1), the rangefinder, the measuring device, and the front plate have been removed.

Unscrew one screw 8.1/25. Unscrew one screw 6.1/25 and one screw 6.1/30, remove the cable clamps 6.1/10, contact spring 6.1/9 and contact piece 6.1/1. Replace the screw 6.1/25. Remove angle 6.1/16. Unscrew the sleeve 1.1/11 and remove the release button. Lift the lever with slider 11.1/5 off the release spindle 7.1/10. Lift the release spindle 7.1/10 out of its guide and remove it downwards together with spring 7.1/23. Unhook and remove the leg spring 7.1/22. Remove the counting disc 8.1/3 (see page 7.1) Remove the slider 7.1/21. Unscrew two screws 15.1/15 and remove the shielding 15.1/2. Undo two grub screws 15.1/13 and release the tension of the spring rollers by anti-clockwise rotation of the threaded couplings 15.1/6
Unscrew two screws 15.1/15 and remove the cable clamp and bearing angle.

Ensure that the sleeves 14.1/9 do not fall into the shutter. Pull out the tape pulley 14.1/1 and the shutter roller 14.1/2 from the bearing angle 7.1/6. Unscrew one screw 7.1/36, one screw 7.1/34 together with disc 7.1/41 and remove the bearing angle 7.1/31. Unscrew one screw 7.1/39 and remove the complete gearing 7.1/11.

Set the shutter speed dial at "B"
Wind the winding lever and ensure that the lever 7.1/27 has engaged. The bevel gear 8.1/1 must be in a position so that a tooth of the lower gear wheel and a tooth of the bevel gear point together towards the gearing in the longitudinal axis of the camera (see Fig. 4.1)

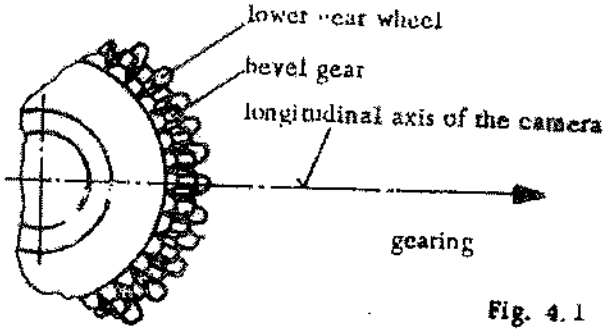


Fig. 4.1

Set the gear wheels of the gearing by anticlockwise rotation of the bevel wheel 7.1/5 so that the lever 7.1/8 engages. Push the brake lever upwards against the stop pin and rotate the bevel gear 7.1/5 so that the centre of the carrier of the bevel gear points towards the inside edge of the short leg of the brake lever 7.1/19 (see Fig. 5.1).

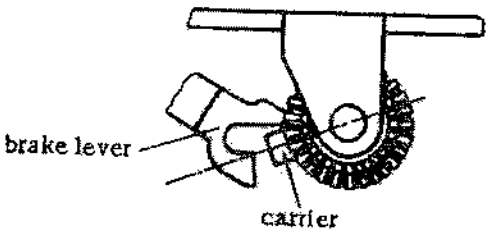


Fig. 5.1

Swing out lever 12.1/3 and hold it in position. Carefully mount the gearing and screw it home tightly. Disengage the levers 7.1/8 and 7.1/27 and wind the winding lever. Check the engagement of the levers. (see page 7.1).

Further assembly is carried out logically in the reverse order.

If the engagements are inaccurate, the gearing must again be removed and the individual settings repeated. The engagement of the lever 7.1/8 can be corrected by adjusment of the bevel gear 8.1/1. The bevel gear is lifted from the mesh and adjusted clockwise up to 3 teeth with excess lift, if the lever does not engage, anticlockwise.

Exchanging the shutter blinds

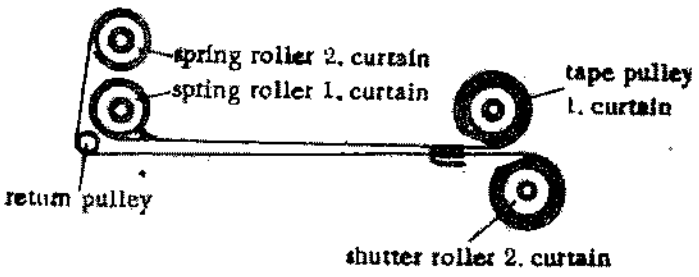
Sequence of operation

Top plate, rangefinder, exposure meter, flash contact, front plate, and light shield with photo resistor have been removed.

Unscrew two grub screws 15.1/13 through about 3 turns. Release the tension of the spring rollers 14.1/3 by depressing and rotating the threaded couplings 15.1/6 anticlockwise.
Remove the two threaded couplings 15.1/6 by anticlockwise rotation, without axial pressure, remove two pressure springs 15.1/9.
Unscrew two screws 15.1/15 and remove the bearing angle 15.1/7. Ensure that the two sleevs 14.1/9 are not lost.

Unscrew screw 10.1/19, release the axle screw 13.1/13 through about 3 turns and remove the plate 10.1/3. Remove the slider 10.1/14. Unscrew two screws 15.1/14 and remove the angle 15.1/8. Carefully remove the first and second shutter blind, as well as the return pulley towards the side of the lens.
Assembly is carried out logically in the reverse sequence. The winding lever must be cocked. The spring roller of the second curtain must be inserted in the bearing from the side of the lens, the pressure spring 15.1/9 introduced and the threaded coupling 15.1/6 screwed home; the spring roller must be slightly tensioned. Push the shutter roller upwards through the aperture. The spring roller of the first roller blind is now inserted in the rear bearing, the pressure spring 15.1/9 introduced and the threaded coupling 15.1/6 screwed home, the spring roller must be slightly tensioned. Push the tape pulley upwards through the aperture. Insert the return pulley 14.1/8 and screw the bearing angle 15.1/8 home.
Wind the second curtain onto the shutter roller 14.1/2 until the rod is positioned on the marking line inside the main body (about 5 mm above the upper edge of the picture window). Insert the shutter roller in the upper bearing bush of the bearing angle 7.1/6 and slightly screw the bearing angle 15.1/7 home. When the shutter roller is inserted in the bearing angle 15.1/7 ensure that the sleeve 14.1/9 is fitted on the spindle. Wind the first curtain on the tape pulley so that the rear edge of the rod of the second roller blind is about 0.1 to 0.3 mm inside the labyrinth of the first curtain. Insert the tape pulley in the two bearing angles and screw the bearing angle 15.1/7 on so that the shutter roller and tape pulley have an axial play of about 0.1 to 0.2 mm.
Release the shutter. Set the rod of the second roller blind parallel to the lower edge of the picture window by rotating the eccentric bearing 15.1/10. The parallelism of the first roller blind and the second roller blind can be affected by the release of the grub screws 14.1/10 in the tape pulley 14.1/1 and suitable rotation of the rollers. This also permits a correction of the overlap in the labyrinth. The grub screws 14.1/10 must be retightened.

position of shutter blinds Fig. 6.1



Exchanging the measuring device

The following tools are required:

1 gauge 400-071.439-101 W1
1 eye piece 042-792.002-000 W12

Sequence of operations

The top plate has been removed.
Unscrew the screw 6.1/23 together with the leg spring 6.1/22. Turn the shutter speed dial to position "B". Unscrew screw 7.1/34 and push the bearing angle 7.1/31 towards the measuring device. Remove the steering lever 6.1/7, ensure that the little lug 6.1/20 is not damaged. Unhook the bolt spring 6.1/15 on the measuring device 6.1/19. Unscrew two screws 6.1/28 and remove the plates 6.1/14 and 6.1/13. Unhook the slider 6.1/3 on the measuring device and remove it. Unsolder the two connection cables on the measuring device. Unscrew two screws 6.1/26 and push the angle of measuring device 6.1/11 towards the film guide. Remove the measuring device 6.1/19, ensure that the pointer is not bent.

Assembly is carried out logically in the reverse sequence. The axial play of the measuring instrument should be about 0.1 mm. Ensure that the pointer of the measuring mechanism can be freely moved between the mask of the rangefinder and the measuring device carrier 6.1/2. Corrections are possible only if the two screws 6.1/26 and released and the measuring device carrier adjusted accordingly. Hook the bolt spring 6.1/15 into the measuring device. Insert the slider 6.1/3 in the recess of the plate 4.1/2 of the shutter speed setting knob so that the guide lug is situated on the first cam behind the plate (see Fig. 7.1) Rotate the measuring device that the bearing bush of the slider is situated on the bearing pin of the measuring device. Mount the plates 6.1/13 and 6.1/14.
If the rangefinder was removed during the assembly, the measuring device must be aligned with the aid of gauge 400-071.439-101 W1 and mounted. The gauge must be mounted in place of the rangefinder.

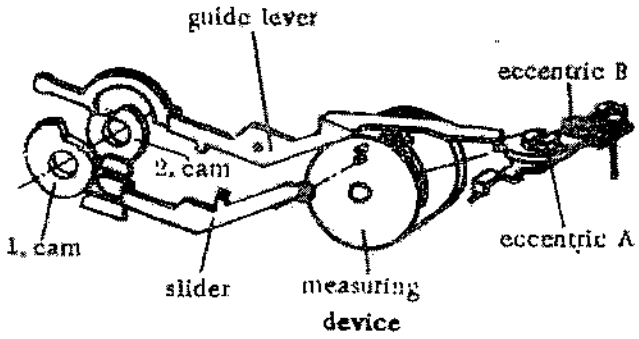


Fig. 7.1

Checking the position of the warning mark

Set the rotating knob for film speed at 33 DIN. The warning mark must be visible in the recess on the right of the viewfinder image at the shutter speed settings "8" to "B". Analogously it must be visible at the time setting "B" from 21 DIN to 33 DIN (see Fig. 8.1). A correction can be made if the measuring device carriers are released and adjusted.

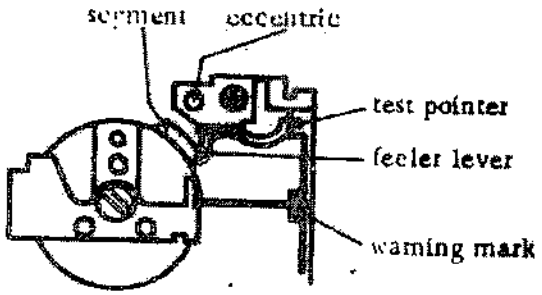


Fig. 8.1

Setting the test pointer

After the alignment of the measuring device as described above, the segment 6.1/17 must be glued onto the casing of the measuring device. Set the rotating knob for film speed at 21 DIN and the shutter speed setting knob at "60". Glue the segment 6.1/17 so that the test pointer of the battery test indicator 6.1/4 appears in the recess in the top right hand corner of the viewfinder field (see Fig. 8.1). The feeler lever must make contact with the oblique face of the segment in this position and must not appear at other settings (see Fig. 8.1). Corrections can be carried out by rotation of the eccentric on the battery test indicator.

Mounting the guide lever

Insert the guide lever 6.1/7 at the time setting "B" so that the lug is guided in the milled recess of the main body and positioned on the second cam behind the plate of the shutter speed knob (see Fig. 7.1). Insert the guide rivet of the guide lever in the bearing angle 7.1/31 and screw the bearing angle firmly in position. Screw the screw 6.1/23 together with the spring 6.1/22 home and hook the spring in.

Adjustment of the exposure indicator

Screw the eye piece 042-792.002-000 W 12 on the rangefinder eyelens and observe the exposure time indication through the viewfinder. If the lift between "B" and "1000" is too great or too small, i.e. if the pointer moves beyond both end settings or stops before both end settings, correction will be possible by rotation of eccentric "A" (see Fig. 7.1) of the guide lever 6.1/7.

If the whole indication is too far to the right or to the left, i.e. the pointer is situated in front or behind the time values, correction can be carried out by rotation of eccentric "B" (see Fig. 7.1) of the guide lever.

Ensure that the bearing angle 7.1/31 does not restrict the lift of the guide lever. If necessary the bearing angle must be released and aligned.

Adjusting the exposure meter

The following tools are required:

1	Test light	42-655. 01 Z 1 W 7
1	Calibration instrument	42-655. 01 Z 1 W 22
1	Voltage stabilizer	KH 10
1	Transformer	REROW
1	Basic support	042-730. 001-000 W 22
1	Connecting cable	042-792. 101-000 W 14

Sequence of operations

Camera back and foil 15. 1/4 have been removed. Place the camera on the support 42-730. 001-000 W 22. Insert the connecting cable 42-792. 101-000 W 14 instead of the midget battery. Wind the shutter and swing the winding lever slightly out of its resting position so that the exposure meter is switched on. Set the setting button for the film speed at 18 DIN and the shutter speed setting button at 1000. Depress the button 15 of the test light 42-655. 01 Z 1 W 7. The measuring needle visible on the right next to the viewfinder image must be in the central rectangular recess. Correction is possible by rotation of the rotating resistance R3 (see page 150. 1). The rotating resistance is adjusted with the aid of a screwdriver through the upper bore visible from the cassette chamber.

Set the shutter speed setting knob at 30 and depress button 10 of the test light. The measuring pointer must again be in the central recess. Correction is possible by rotation of the rotating resistance R4 (see page 150. 1). The rotating resistance R4 is adjusted through the second bore from above.

The resistance value of R3 may change owing to a correction of the rotating resistance R4.

Alternately repeat the two above-mentioned settings until the measuring pointer appears in the recess in both cases.

Set the shutter speed setting knob at 2 and depress button 6 of the measuring lamp. Again the measuring pointer must appear in the central recess. Correction is possible by rotation of the rotating resistance R5 (see page 150. 1) The resistance values of R3 and R4 may change owing to a correction of the rotating resistance R5.
Alternately repeat all the above-mentioned settings until the measuring pointer appears in the recess in al cases.

Set the knob for the film speed at DIN 24 and the shutter speed knob at 2. Depress button 4 of the test light. With this setting, too, the measuring pointer must appear in the recess. Corrections can be carried out by rotation of the rotating resistance R5. In case of a correction the entire adjustment should be checked.

The tolerance is 2/3 light values $\hat{=}$ 2 DIN

Test

Set the knob for film speed at 24 DIN and the shutter speed setting knob at 125. The test pointer appears in the recess in the top right hand corner of the viewfinder field. Depre test button 5. 1/8. The measuring pointer must appear in the central rectangular recess. Correction can be carried out by rotation of the rotating resistance R6.
The test is not affected when the battery is switched off.

Exposure meter adjustment

DIN setting	Time setting	Button-measuring lamp	Rotating resistance
	1000	15	R3
	500	14	
	250	13	
	125	12	
	60	11	
18	30	10	R4
	15	9	
	8	8	
	4	7	
	2	6	R8
24	2	4	R5
24	125	TEST	
21	60	TEST	R6
18	30	TEST	

Dismantling and mounting the rangefinder

The following tools are required:

Spanner	400-071.931-601 W1
Setting gauge	400-071.052-601 A1

Sequence of operations

The top plate and the steering lever 6.1/7 have been removed.
Unscrew the nut 6.1/27 of the roller lever 6.1/6 with spanner 400-071.931-601 W1 and remove the roller lever. Unscrew the shoulder screw 6.1/24 and remove the stop 6.1/21.

Unscrew two screws 6.1/31 and remove the rangefinder.

Assembly is carried out logically in the reverse order.

Before the nut 6.1/27 of the roller lever is screwed home, the position of the roller lever must be fixed with the aid of the setting gauge 400-071.052-601 A1.

Adjusting the rangefinder

The following tools are required:

1.	Table stand	042-253.001 Z1 W7
2.	Camera holder	042-253.001 Z1 W9
3.	Graticule housing 1 m	042-253.001 Z1 W63
4.	Graticule 1 m	042-792.001-000 W 12
5.	Graticule housing 10 m	103.25.2
6.	Graticule 10 m	103.25.16 or
	Graticule only for LEICA CL	042-792.001-000 W10
7.	Distance setting gauge	042-582.001 Z1 A10
8.	Viewfinder mask setting gauge	042-253.001 Z1 A107
9.	Angle screwdriver	042-253.001-703 W2 or
	Special screwdriver	042-253.001-703 W3
10.	Magnifier	042-792.002-000 W12
11.	Housing	042-792.101-000 W9
12.	Spanner	400-071.591-603 W1
13.	Fixing pin	042-253.001 Z1 W84

Sequence of operations

Note

An additional mark must be made for the infinity adjustment of the LEICA CL (see Fig. 9.1) when the 10 m graticule - necessary for the LEICA M and LEICA screw-thread models - is used.

The camera back, the film pressure plate, and the top plate are removed. Place the magnifier 042-792.002-000 W12 in position and screw it home. Lock the distance setting gauge 042-582.001 Z1 A10 in position. Insert the camera into the housing 042-782.001-000 W9 and clamp it on the camera holder 042-253.001 Z1 W9

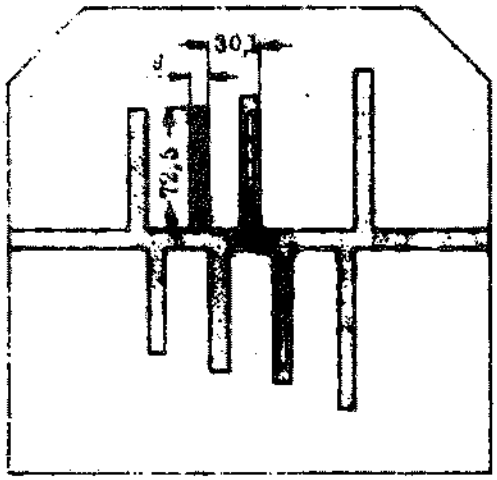


Fig. 9.1

Height setting

Swing the attachment telescope in front of the magnifier and turn the distance setting gauge to ∞. The horizontal line of the 10m graticule must coincide with the mirror image. Corrections can be carried out by rotation of the grub screw (see Fig. 10.1) with the spanner 400-071.501-503 W1.

Ensure that the eccentric (see Fig. 10.1) is not interfered with, because this changes the basic adjustment of the rangefinder.

To be able to carry out height adjustment with the top plate in position, the 1.1/9 must be removed.

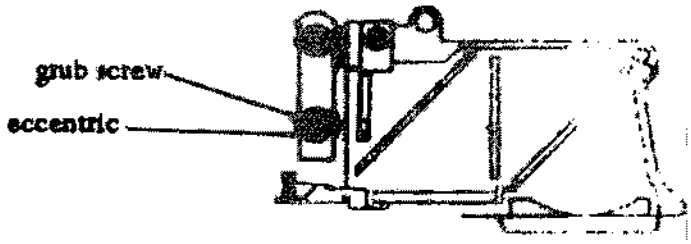


Fig. 10.1

Lateral setting

Swing the attachment telescope in front of the magnifi and set the distance setting gauge at ∞. The central line of the mirror image must coincide with the marki for the LEICA CL (see Fig. 9.1). When the 10m graticule 042-792.001-000 W10 is used the central line of the mirror image must coincide with the left hand line of the graticule.

Corrections can be carried out by rotation of the eccentric in the roller lever (see Fig. 11.1

Fig. 11.

For this purpose the spanner 042-253.001-703 W2 or 042-253.001-703 W3 can be used.

Swing out the attachment telescope and set the distance setting gauge at 1 m. The vertical lines of the 1 m graticule (see Fig. 13.1) must coincide with the same lines of the mirror image. Corrections of the 1 m setting can be carried out by rotation of the setting cam (see Fig.12.1).

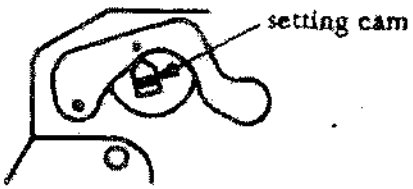


Fig. 12.1

For this purpose the guide lever 6.1/7 and the mirror 6.1/32 must be removed. Caution, do not damage the surface of the mirror. After the 1 m setting has been carried out, alternately repeat the ∞ - and 1 m setting until both settings are correct.

Swing the attachment telescope in front of the magnifier and rotate the distance setting gauge from 1 m to 10 m. Repeat the same setting from ∞ - 10 m. The deviation of the mirror image from the lines of the 10 m graticule must not be more than half a line width. If a greater deviation cannot be avoided, a repair of the rangefinder is necessary.

Unlock the distance setting gauge and check the 0.8 m setting. If necessary the stop 6.1/21 must be bent so that the roller lever makes contact at 0.8 m.

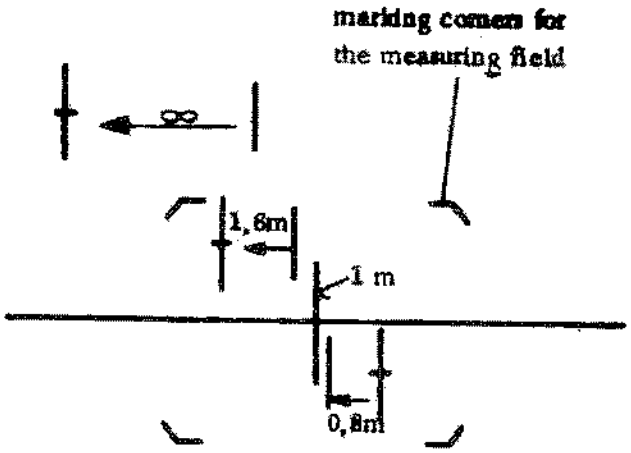


Fig. 13.1

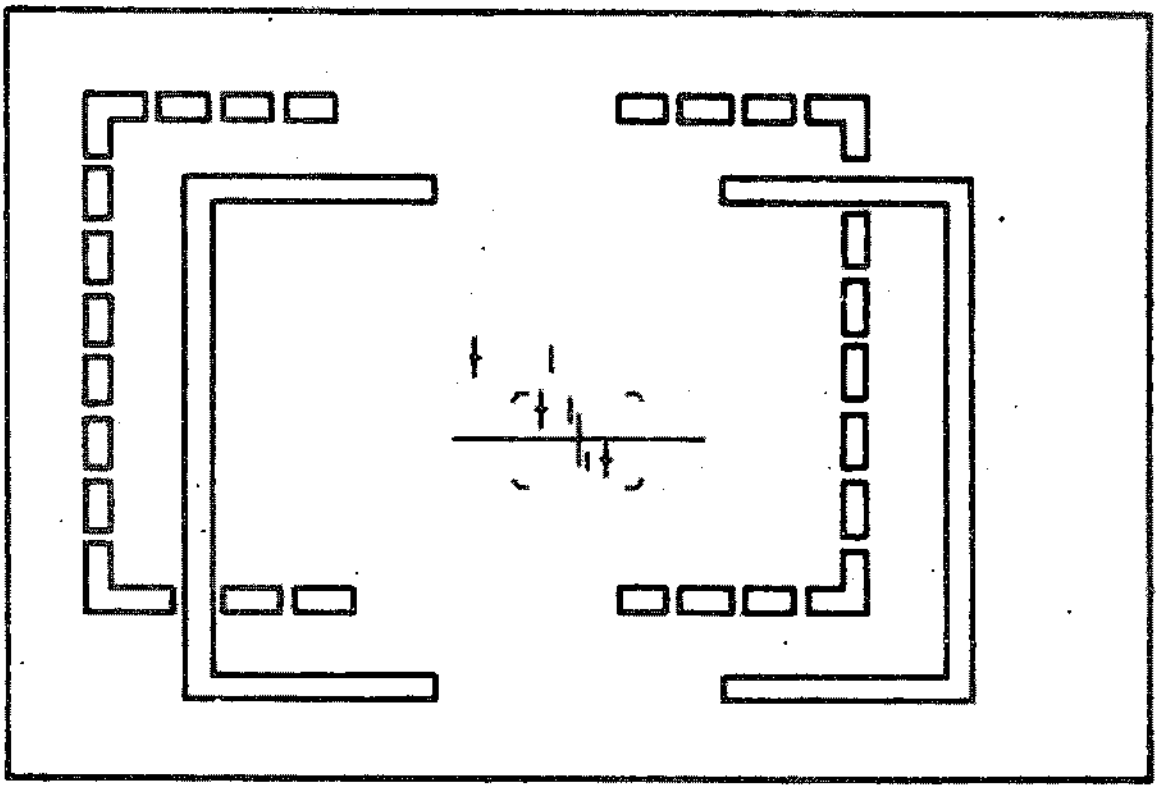


Fig. 13.2

Parallax compensation

Wind the shutter and set at "B". Screw the fixing pin 042-253. 001 Z1 W84 into the release button and press the button. Place the camera with distance setting gauge 042-582. 001 Z1 A10 on the camera holder 042-253. 001 Z1 W9. The groundglass screen on the camera holder is swung in front of the camera picture window and the distance setting gauge set at 1 m. The uninterrupted format outline on the graticule of the 1 m graticule housing is precisely aligned to the camera picture window on the groundglass screen. For this purpose the camera holder can be adjusted vertically and horizontally with two knurled screws on the right. When the camera is accurately aligned, the 9 cm viewfinder frame of the camera must coincide with the uninterrupted format outline on the graticule. When the distance setting gauge is adjusted to ∞ the viewfinder mask must constantly move towards the interrupted format outline. In the ∞ setting minor deviations of the graticule format outline from the viewfinder frame are admissible.

If a horizontal correction is required the mirror 6.1/32 must be correspondently aligned after the screw 6.1/34 has been released (see Fig. 14.1)

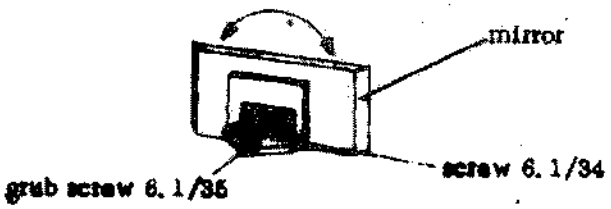


Fig. 14.1

Retighten screw 6.1/34.

If the viewfinder frame of the camera is not parallel to the format outline of the 1 m graticule, correction is possible by rotation of the grub screw 6.1/35 (see Fig. 14

If a vertical correction is required the slider (see Fig. 15. must be appropriately bent.

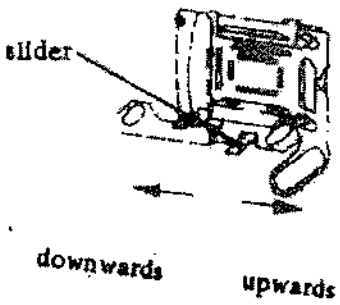


Fig. 15.1

Adjusting the measuring field

Set the distance setting gauge at 1 m. (The picture windo of the camera is aligned to the format outline of the 1 m graticule). The measuring field of the camera must be aligned with the marking corners of the graticule (see Fig 13.1). Horizontal correction is possible after the cross-slotted screw (see Fig. 16.1) has been released, by displacement of the mask carrier in its longitudinal direc

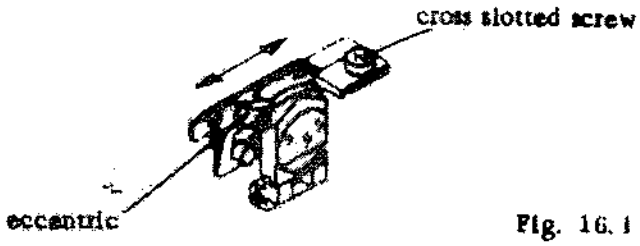


Fig. 16.1

Vertical correction can be carried out by rotation of the eccentric.

Viewfinder masks

Lock the viewfinder mask setting gauge 042-253.001 Z1 W107 into the camera. Engage the setting button of the gauge in the central position 5 cm (focal length identification). Observe the viewfinder field and rotate the viewfinder mask setting gauge radially on the camera as far as the widened engagement slot of the gauge permits. The pressure plate in the upper part of the gauge must alternately be depressed as far as it will go. The 9 cm viewfinder frame must not become visible. The viewfinder mask setting gauge is then moved against the 9 cm stop, the setting gauge radially rotated and the pressure plate depressed.

During this test the 9 cm viewfinder frame must always remain visible. If a correction is required, the screw 11.1/22 must be released and the setting slide 11.1/9 adjusted until the viewfinder masks coincide with the setting gauge.

Testing and setting the shutter speeds

The following tools are required:

1	Light drum	042-253. 001 Z1 W100
1	Speed template	042-792. 001-000 W16
1	Base plate	042-253. 001-000 W100-33
1	Camera support	042-792. 001-000 W15
1	Shutter speed tester	042-253. 001 Z1 W111
1	Camera support	042-253. 001-000 W111-4
1	Mirror	042-792. 001-000 W16

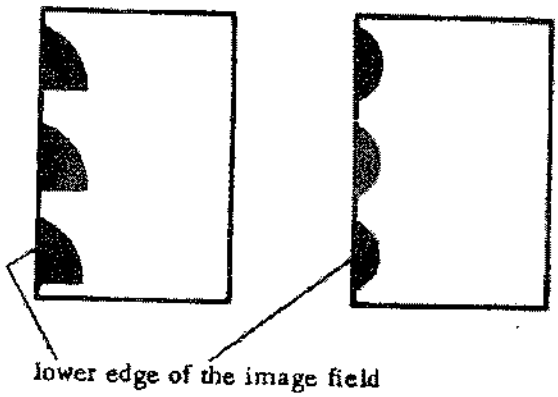
Sequence of operations

(The camera slip-on shell has been removed).
Set the shutter speed knob at 1000.
Attach the camera in the upright position to the light drum and insert the shutter speed template in the picture window. Observe the shutter action by repeated winding and releasing. The actuating cam must agree with the shutter speed template. The slit formation should be a little wider at the bottom than at the top.

Corrections are possible by tightening or releasing the spring rollers 14. 1/3. To do this release the two grub screws 15. 1/13 through about 3 turns. Depress the threaded couplings 15. 1/3 axially with the aid of a screwdriver and rotate them clockwise for tightening, and anticlockwise for relieving the tension. After the setting the two grub screws 15. 1/13 must be tightened again.

Set the shutter speed button at 125 and observe the shutter action. If uneveness occurs along the bottom edge of the image field, this is caused by a "bouncing" of the first roller blind (see Fig. 17. 1).
The only remedy is the setting of the brake (see page 25

Fig. 17. 1



After the shutter speed has been set on the light drum, th shutter speeds are set on the shutter speed tester 042-253. 001 Z1 W111. Set the shutter speed knob at 50 place the mirror 042-792. 001-000 W13 in the picture window of the camera and attach the camera in the uprig position to the shutter speed tester. Release the shutter an observe the pointer deflection. (Tolerances see survey sheet "tolerances for LEICA models").
Corrections are possible by rotation of the eccentric with the lever 12. 1/3 with the aid of pin 0. 7 mm dia (see Fig. 18. 1).

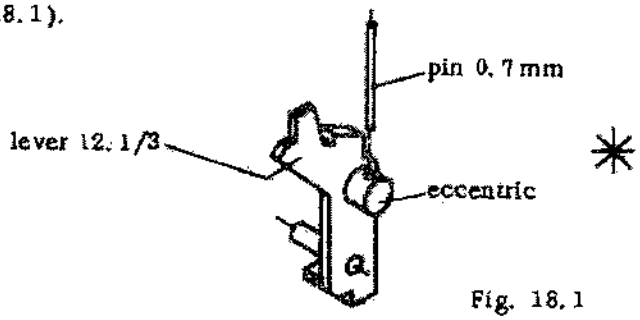
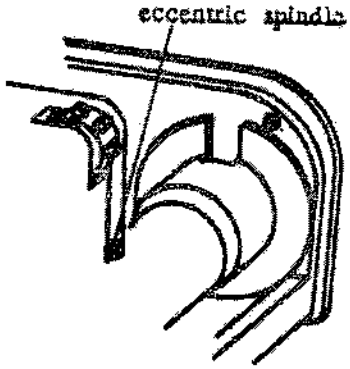


Fig. 18. 1

Check the shutter speeds 60, 125, 250 and 1000. A correction of the speed setting 1000 is possible by means of bending the setting lug of the high speed cam 4.1/19. If the speed indication shows + (plus) the setting lug must be bent away from the axis. If the speed indication shows minus (-) the setting lug must be bent towards the axis.

Set the speed setting knob at 30 and observe the pointer deflection. If the indication is outside the tolerance, correction is possible by rotation of the spindle 12.1/14 from the direction of the cassette chamber (see Fig. 19.1).



If the cam adjustment is insufficient, the front plate must be removed and the stop lug of the slow speed mechanism be bent accordingly (see Fig. 20.1).

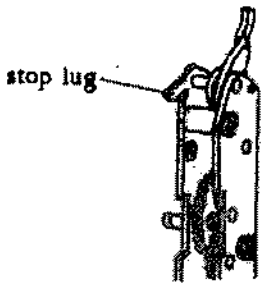


Fig. 20.1

If the shutter speeds are too fast, the stop lug must be bent downwards, if they are too slow, upwards.
Check the shutter speeds 15, 8, 4 and 2.

✳ If a correction by rotation of the eccentric is not possible, the lug of the slide 12.1/1 (see Fig. 18.2) can be appropriately bent.

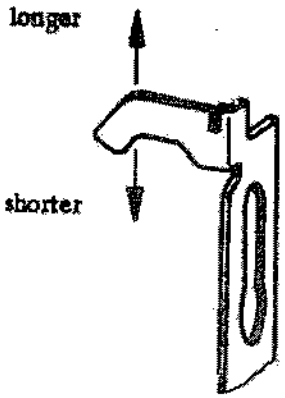


Fig. 18.2

Setting the brake

The following tools are required

2 Spanners 400-071.931-901 W 1

Sequence of operations

(The top plate has been removed).
Set the shutter speed knob at "B" and release the first shutter blind. It should run about 2 mm behind the edge of the picture window. Correction is possible by release of the check nuts 7.1/38 and suitable adjustment.
The setting should preferably be done from the picture window, i.e. the brake must, to begin with, be set a little tighter and then slackened.
After the setting set the shutter speed knob at 125 and check the shutter action for bouncing of the first shutter blind on the light drum (see Fig. 17.1). If necessary the action of the first shutter blind must be corrected by means of resetting the brake.
Ensure that the friction of the brake is not set too strong, since this may have an effect on the first phase of the shutter wind.

Checking the synchronization

The following tools are required:

1	Contact tester	042-531. Z1 W13
2	Connecting cable	042-730. 001-000 W12
3	Synchro setting device	042-253. 001 Z1 W109
4	Illuminating template	042-792. 001-000 A3

Sequence of operations

Before this test is carried out, the shutter speeds must be tested (see pages 23.1).
Connect the hot shoe contact of the camera to the contact tester via the connecting cable 042-730. 001-000 W12.

Testing the current flow resistance

Set the switch on the contact tester at 500 V and the lever at "D". Set the shutter speed knob at "B" release the shutter and keep the release button depressed. The pointer deflection must be within the range 50 and higher of the scale.
If the scale value 50 is not reached the defect is due to the fact that either the contacts are dirty or do not have sufficient initial potential. In this case the top plate must be removed.

Testing the insulating resistance

Switch the lever of the contact tester to "I".
(The switch remains at the 500 V position).
Extinguish the glow lamp by depressing the extinction lever. It must not light up in the resting position and while the shutter is being wound. The pointer must not be deflected. If the pointer is deflected or the glow lamp lights up this is due either to a short or the contact springs are not correctly adjusted. In this case the top plate must be removed.

Checking the correct contact position

Connect the hot shoe contact of the camera to the synchro setting device 042-253. 001 Z1 W109 via the connecting cable 042-730. 001-000 W12. Set the shutter speed knob at 60. Insert the illuminating template 042-792. 001-000 A3 in the picture window and attach the camera to the tube of the synchro testing device. Release the shutter and observe the illumintion. The two recesses of the illuminating template must be illuminated.

Illuminating template

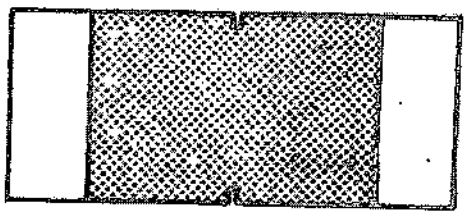


Fig. 21.1

If a correction is necessary, the adjustment of the contact springs must be changed. For this purpose the top plate must be removed.

1. Flash synchronization

	Engraved values	Rated value in ms	Tolerance in %
1.1 Internal resistance			
The internal resistance must be less than 300 milliohm	2	500	+ 20 − 30
1.2 Insulation	4	250	± 20
	8	125	
The insulation is measured at 500 v and within a temperature range from 0° ... + 40° C and relative humidity from 45 ... 85 % it must be above 30 megaohm	15	62, 5	
	30	31, 3	+ 30 − 20
1.3 Firing point	60	15, 6	± 20
	125	7, 81	
The firing point for the flash contact at 1/60 sec must be situated so that the flash is fired at or behind the edge of the picture field.	250	3, 91	+ 30 − 25
	500	1, 95	
	1000	0, 997	+ 40 − 30

2. Shutter

2.1 Shutter speed table

The ratio of the mean values of two adjacent shutter speed settings should be at least 1.6 in the course of three measurements and should not be more than 2.6 (rated value 2.0). The first release at 1/1000 sec is factored out here. In addition, 9 of 10 successive measurements must be within a range not exceeding 50 % of the stated tolerance.

2.2 Jumping

The roller blinds must not jump within the pictu area. The test is carried out at 1/60 and 1/25 se

3. Shutter release

3.1 Release pressure

The release pressure must be between 2.5 N (250 p) and 4.25 N (425 p); the release point must be below the rim of the release disc. There must be an over-lift.

3.2 Swivelling arm

The swivelling arm of the photoresistor must release the shutter at a distance from 0 to 2.5 mm from the edge of the picture field.

4. Film wind

4.1 Friction

The friction of the take-up spool must be 1.7 to 3.2 N (170 - 320 p) and must function smoothly.

4.2 Rewind release

The push-button for the rewind release must unlock the film transport sprocket reliably in the depressed state and with a film inserted, and must visibly return to its initial position with renewed film winding.

4.3 Rewind crank

In both the folded and swung-out position the rewind crank must be spring-loaded against the baseplate.

4.4 Film counter

The film counter must count correctly adding up the frames and return to - 2 automatically even when the camera back is removed slowly.

4.5 Width of frame separation

The width of separation between the individual frames must not differ by more than 0.8 mm with even winding and use of a lens of the same focal length, the distance of the frames to the perforation hole must be at least 0.2 mm, the perforation holes must be situated relative to the frame line so that no perforation hole is lined up with the centre of the separation.

5. Alignment

5.1 Support distance

The distance between the bayonet ring and the support of the film pressure plate must be kept within a tolerance of 27.95 $\pm$ 0.02 mm.

5.2 Auto-collimation

The inclination of the bayonet support surface is checked with the auto-collimator. For this purpose the bayonet is fitted with the ring

042-792.001-000 A 20.

Tolerance: 1 line width.

6. Exposure meter

6.1 Photo resistor

The photo resistor may be outside the centre of the picture field by no more than 1 mm.

6.2 Main switch

The main switch must positively switch on and off during operation of the film winding lever.

6.3 Measuring needle

The measuring needle must move perfectly over the entire range of indication.

6.4 Current consumption

At light value 15 the current consumption must not exceed 500 mamp.

6.5 Warning mark

The warning mark must be set so that it enters at 100 ASA and B and covers the major part of the measuring field.

6.6 Battery test

The pointer for the battery test must become visible at 100 ASA and 1/60 sec, and at 1/30 sec or 125 sec it may still be 0.1 mm within the setting field. It must protrude into at least 1/3 of the field.

6.7 Balance

The balance must be carried out so that the total deviation is within 0.5 light values. The difference between two neighbouring values must exceed 0.5 light values.

6.8 Control measurement

Control measurements in the exposure measuring system must be carried out only after 24 hours storage in darkness and 1 hours preexposure of the photo resistor at 50 lux. The measurements must proceed from bright to dark.

7. Viewfinder

7.1 Erection and tilting errors

The erection and tilting error on the 1 m measuring stand must not exceed 1 line width in the 1 m position and 1.5 line width in the position.

7.2 Shutter speed dial

The shutter speed dial and the exposure meter field must not exhibit any errors, without lens the exposure meter field must still show up as a recognizable slit.

7.3 Bright-line frame

When the gauge is locked, the brightline frames for 50 mm and 90 mm lenses must never appear simultaneously.

7.4 Exposure time pointer

The exposure time pointer must clearly point at the set shutter speed, must not stick during adjustment, and the urambiguity of the indication must not be destroyed by reversal error (check with dioptre 1.5 mm ∅).

8. Rangefinder

8.1 Setting tolerances for the 1 m measuring stand with broad bar:

Elevation errors		Lateral errors
± 0.5 line	——— ∞ ——— (on 10 m graticule)	± 0.5 line
± 1 line	——— 1 m ——— (on 1 m graticule)	optimum setting on bar of 15 mm width
	0,8 m ———	± 2 lines

The reversal error must not become so great that the edge of the bar in the measuring window protrudes beyond that in the viewfinder window.

8.2 Setting tolerances for the 1 m measuring stand with narrow bar:

Elevation errors		Lateral errors
± 0.5 line	——— ∞ ——— (on 10 m graticule)	0.5 line left and right
± 1 line	——— 1 m ——— (on 1 m graticule)	0.5 line right

Reversal error : 0.5 line

Correction of faults

State of instrument

The measuring device does not function

Cause

The measuring device is dislocated from the measuring mechanism angle 6.1/11 by blow or shock.

Repair procedure

Remove the cover (see Repair Instructions p. 1.1). Unhook the bolt spring 6.1/15 on the measuring device at the speed setting 1000. Firmly tighten the screw 6.1/26 on the side of the lens and unscrew that on the side of the film guide. Insert the holder 6.1/38 so that it supports the measuring device angle 6.1/11 on the side of the film guide. Place a washer 6.1/37 in position and screw the screw 6.1/26 back into position. Ensure that the holder makes contact with the measuring device angle along its entire face. Axial play of the measuring device should be about 0.1 mm.

Ensure that the measuring device follows slow rotation of the shutter speed setting knob from position 500 to 1000.

Note

As a temporary solution a wedge was glued between the angle 6.1/16 and the measuring device angle 6.1/11; this state should be altered only when the measuring device is exchanged.

Any cameras returned for repair should be checked whether a holder or wedge has already been inserted. If not it is recommended to insert a holder 6.1/38.

The holder 6.1/38 and the washer 6.1/37 are unnecessa after the introduction of the reinfaced version of the measuring device angle.

Correction of faults

State of instrument
Shutter blocked

Cause

1. Photo-resistor does not remain in the film window
2. Photo-resistor does not swing far enough out the film window
3. Release point of the shutter too late

Repair

1.1 To be able to define the cause of the fault accurately the shutter must first be wound and the winding lever held in position. Move the pin of the lever upwards with the slide (see Fig. 51.1). It must easily move back into its starting position. If it does this, the fault can be cured by lateral displacement of the diaphragm 11.1/1 towards the cassette chamber.

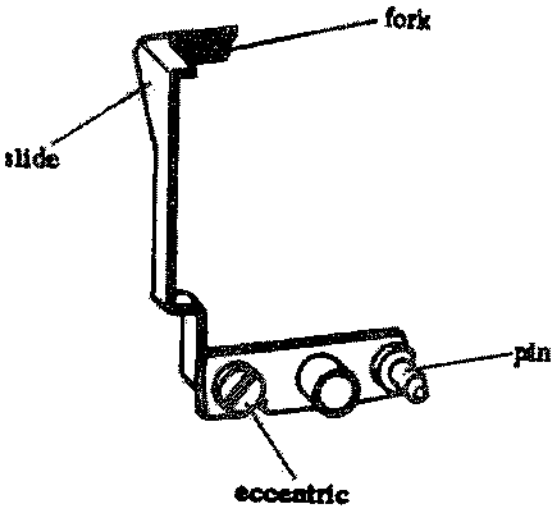


Fig. 51.1

1.2 If after the examination described under 1.1 the pin of the lever with slide does not readily return to its original position, find out first by rotating the eccentric for the release on the lever with slide (see Fig. 51.1) clockwise and counterclockwise whether it is possible to obtain free movement. Now check the release points of the photo-resistor and the shutter (see 3.1). If necessary the slide (see Fig. 51.1) must be slightly stretched or upset.

1.3 It is also possible that the lever with slide becomes detached from the release spindle and thereby clamped. Here the fork of the lever with slide must be slightly compressed so that it again is securely mounted on the release spindle.

1.4 It can happen that the lever with slide forms an angle with the release spindle. In this case the slide must be turned out and slightly adjusted laterally.

2.1 Depress the release button and hold the photo resistor in position before its front edge leaves the film window (e.g. with the back of a pair of forceps). Release the photo resistor it must disappear completely behind the edge of the film window. If it fails to do this, the buffer 13.1/12 must be slightly compressed by means of an angle piece heated with a soldering iron.

Attention ! Use only tool-supplied by Leitz, Wetzlar, since temperature effects are critical.

2.2 A further cause of faults can be the dragging of the photo-resistor along the diaphragm 11.1/1. Here the photo-resistor must be adjusted.

3.1 Place the release gauge 400-071.204-303 A 1 on the release button. The photo-resistor must be released at 0.3 but no release must take place at 0.1.
Wind the shutter and hold the photo-resistor in position during release. Slowly swing the photo-resistor out of the film window. The shutter should be released when the rear edge of the photo-resistor still protrudes about 1 - 2 mm into the film window. Corrections are possible by adjustment of the eccentric (see Fig. 51.1).
If necessary the slide (see Fig. 51.1) must be slightly stretched or upset. Now the ease of movement of the pin should be checked as described under 1.1.

Correction of faults

State of instrument

The shutter does not close at long exposure times

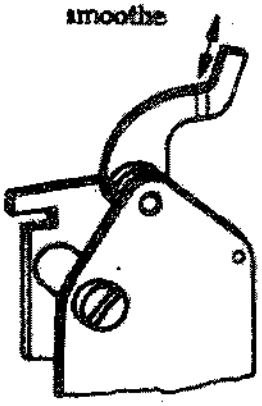
Cause

Segment of the brake : surface too rough

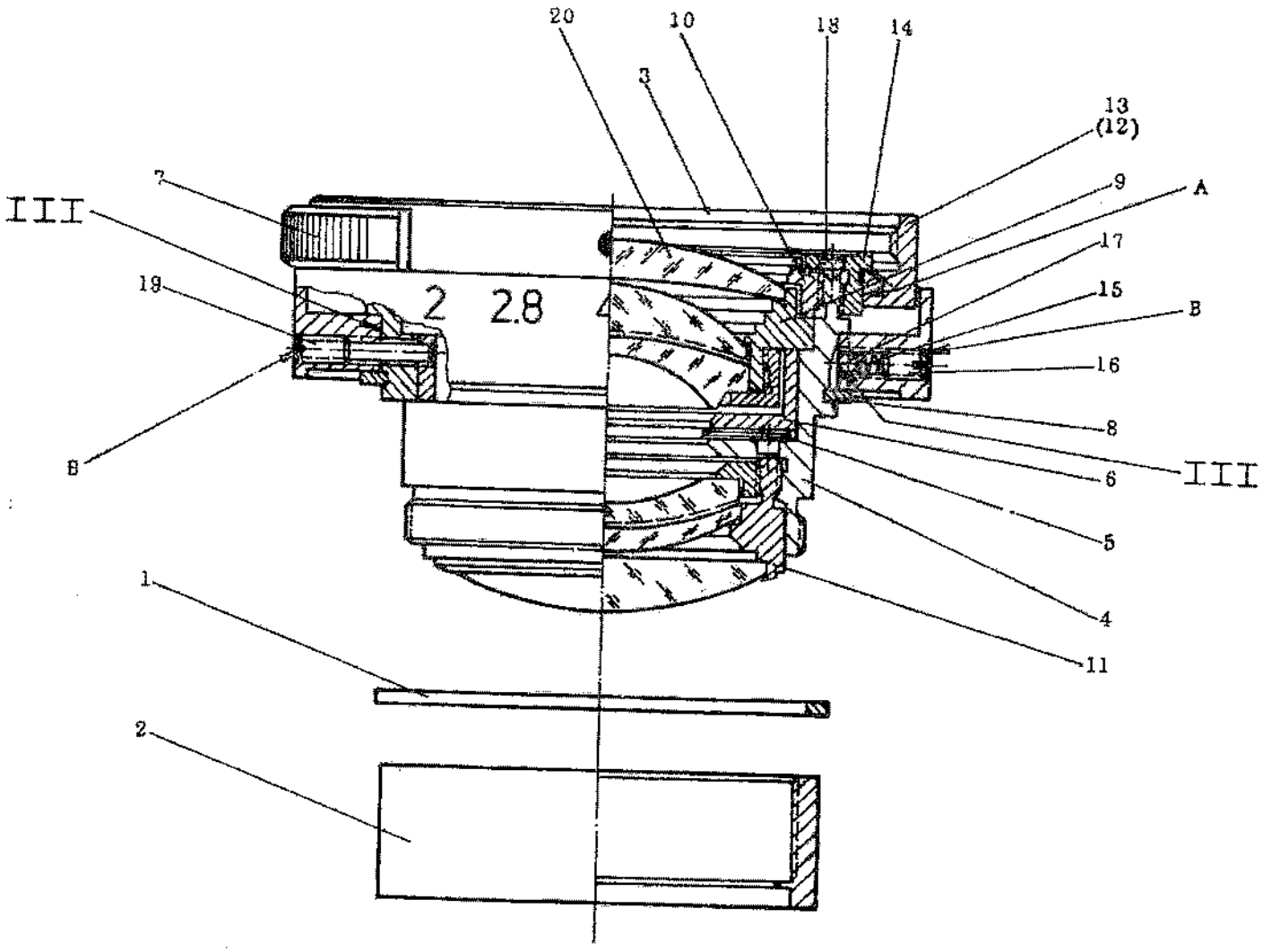
Repair

During machining, the segment may have sustained such deep transverse grooves, that particularly at the shutter speed of 1/2 sec the second roller cannot move. The running surface of the segment must be longitudinally smoothed.

smoothe



The tolerance of the operating speed must in such cases be utilized towards (-) minus.



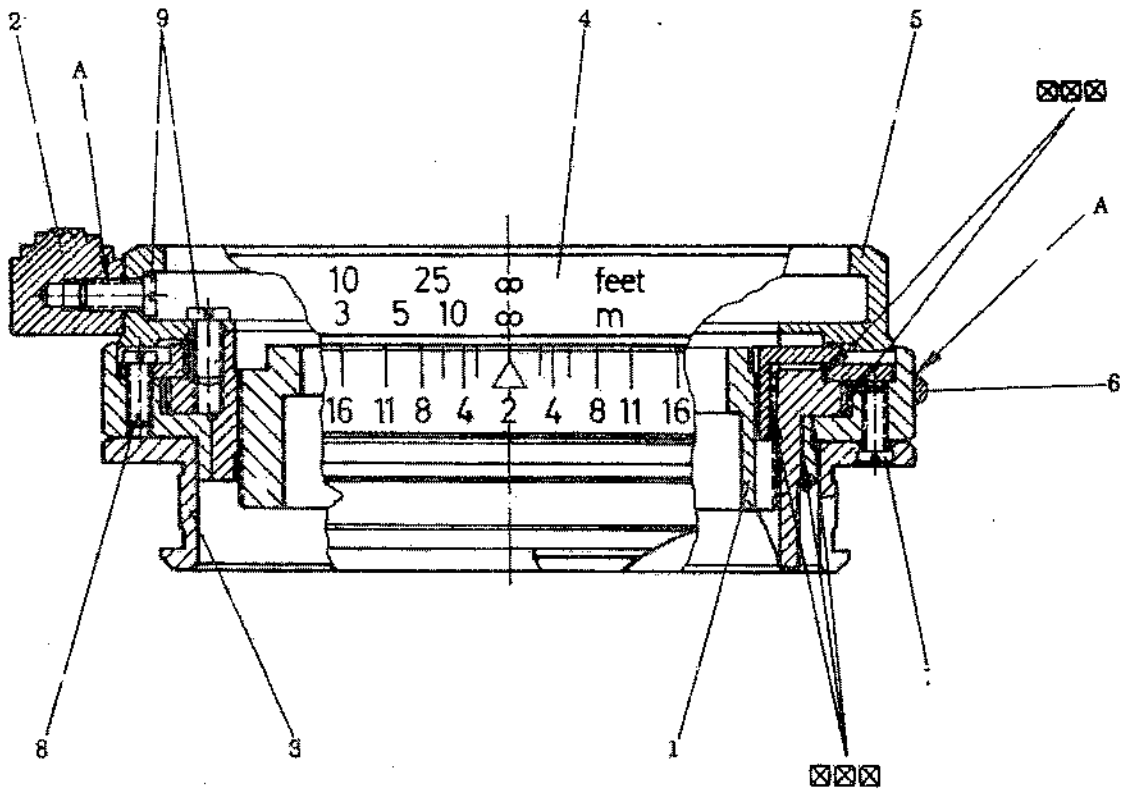
A Araldit 103

B Sicherungslack

III 428

Zustand/

Nr. No.	Bestell-Nr. Part-No.	PG	Stück Nos.	Benennung	Description
1	040-067.001-009	12	1	Abstimmring	tuning ring
2	040-067.001-011	15	1	Vorschraubring	locking ring
3	040-067.002-000	59	1	Objektivkopf, komplett ohne Pos. 1 und 2	lens head, complete without pos. 1 and 2
4	040-067.002-005	27	1	Lamellengehäuse, mont. besteht aus: Pos. 5, 6, 7, 8, 13, 14, 15, 17 und Lamellengehäuse	diaphragm housing, ass. existing of: pos. 5, 6, 7, 8, 13, 14 17 and diaphragm housing
5	040-067.002-010	8	10	Lamelle mit Niet	diaphragm leaf with rivets
6	040-067.002-015	16	1	Lamellenführungsring	diaphragm guide ring
7	040-067.002-017	21	1	Blendeneinstellring	diaphragm setting ring
8	040-067.002-030	6	1	Sprengring	retaining ring
9	040-067.002-035	44	1	Vorderglied, gefaßt (inklusive Pos. 18)	front element, mounted (including pos. 18)
10	040-067.002-040	12	1	Vorschraubring	locking ring
11	040-067.002-044	42	1	Hinterglied, gefaßt	rear element, mounted
12	040-067.002-049	22	1	Zubehörträger, geklebt mit Gravurring bitte Fabrikations-Nr. angeben	accessory carrier, glued with letter ring please state serial-No.
13	040-067.002-050	16	1	Zubehörträger	accessory carrier
14	040-067.002-051	19	1	Gravurring bitte Fabrikations-Nr. angeben	letter ring please state serial-No.
15	042-488.000-045	2	1	Druckfeder	pressure spring
16	702-516.239-000	3	1	Gewindestift M 2 x 3 DIN 551	grub screw
17	704-608.000-000	2	1	Kugel 1,5 mm III DIN 5401	ball
18	707-623.239-000	3	1	Gewindestift M 1,6 x 1,6 LN 12043	grub screw
19	708-372.239-000	3	1	Gewindestift M 2 x 4 x 5 DIN 926	grub screw
20	910-078.201-010	26	1	Linse 1	lens 1



Araldit 103

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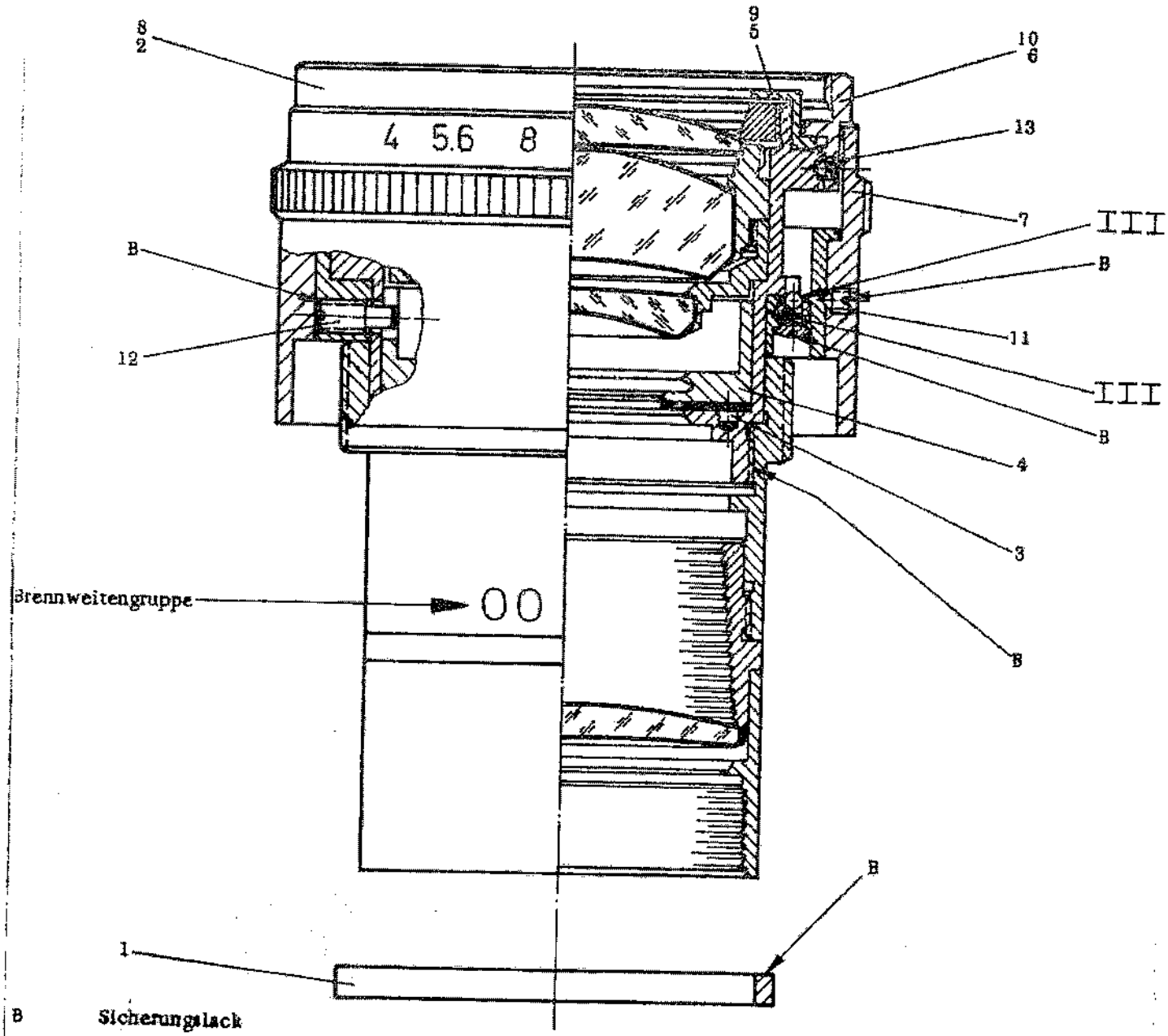
Zustand/ st

Nr. No.	Bestell-Nr. Part-No.	PG	Stück Nos.	Benennung		Description
1	040-065.003-015	19	1	Geradführungsring		guide ring
2	040-065.003-030	11	1	Griffstück		grip
3	040-065.003-035	24	1	Objektivbajonett		lens bayonet
4	040-067.003-000	42	1	Schneckengang, komplett		helical lens mount, complete
5	040-067.003-020	21	1	Entfernungseinstellring		distance setting ring
6	042-548.001-050	4	1	Tastknopf		orientation knob
7	708-707.213-000	4	5	Zylinderschraube	M 1,7 x 4 LN 12010	cylindrical head scre
8	708-707.220-000	4	3	Zylinderschraube	M 1,7 x 4 LN 12010	cylindrical head scre
9	708-713.220-000	4	4	Zylinderschraube	M 2 x 4 LN 12010	cylindrical head scre

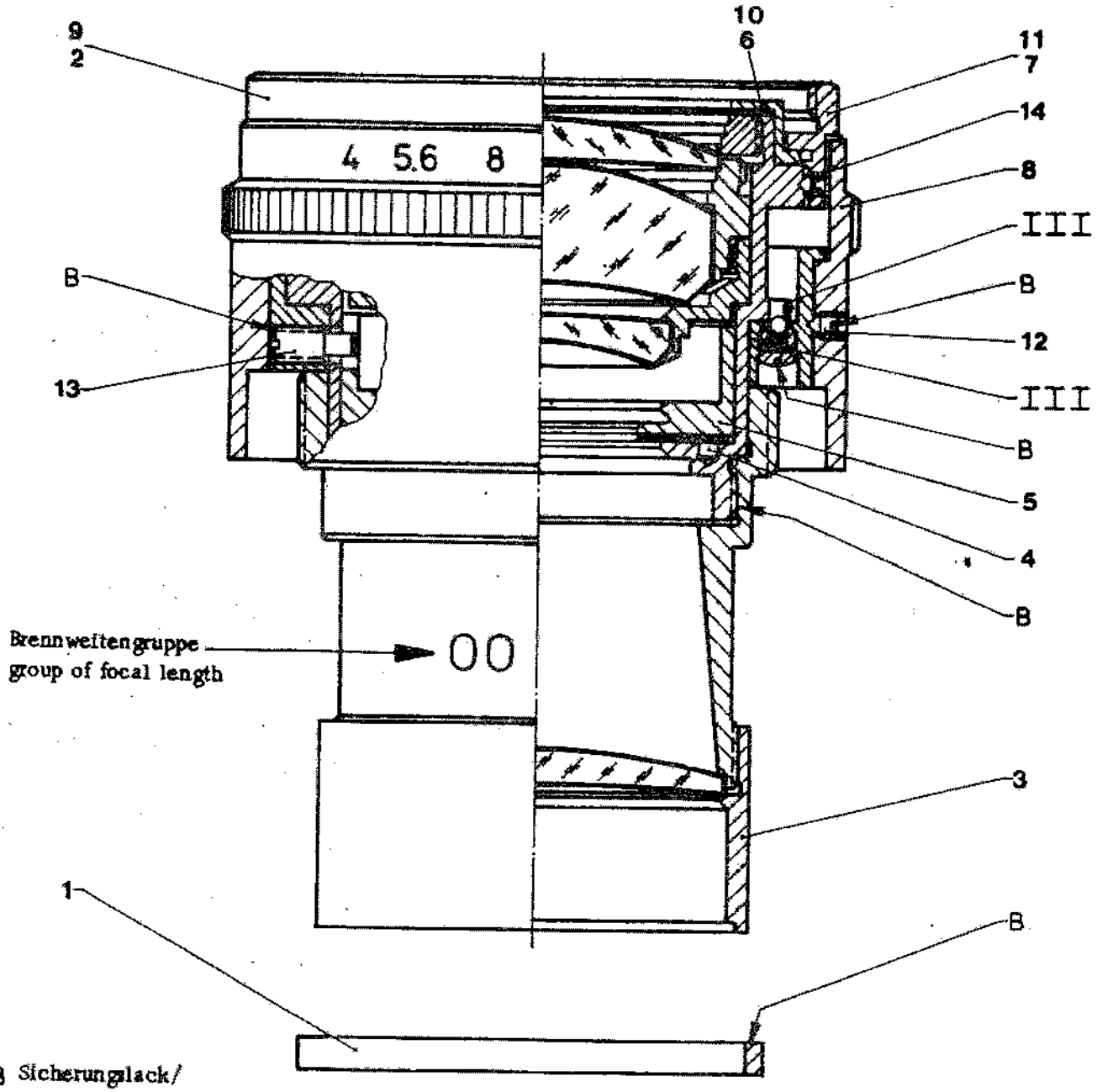


B Sicherungslack

III 428

Zustand / stat

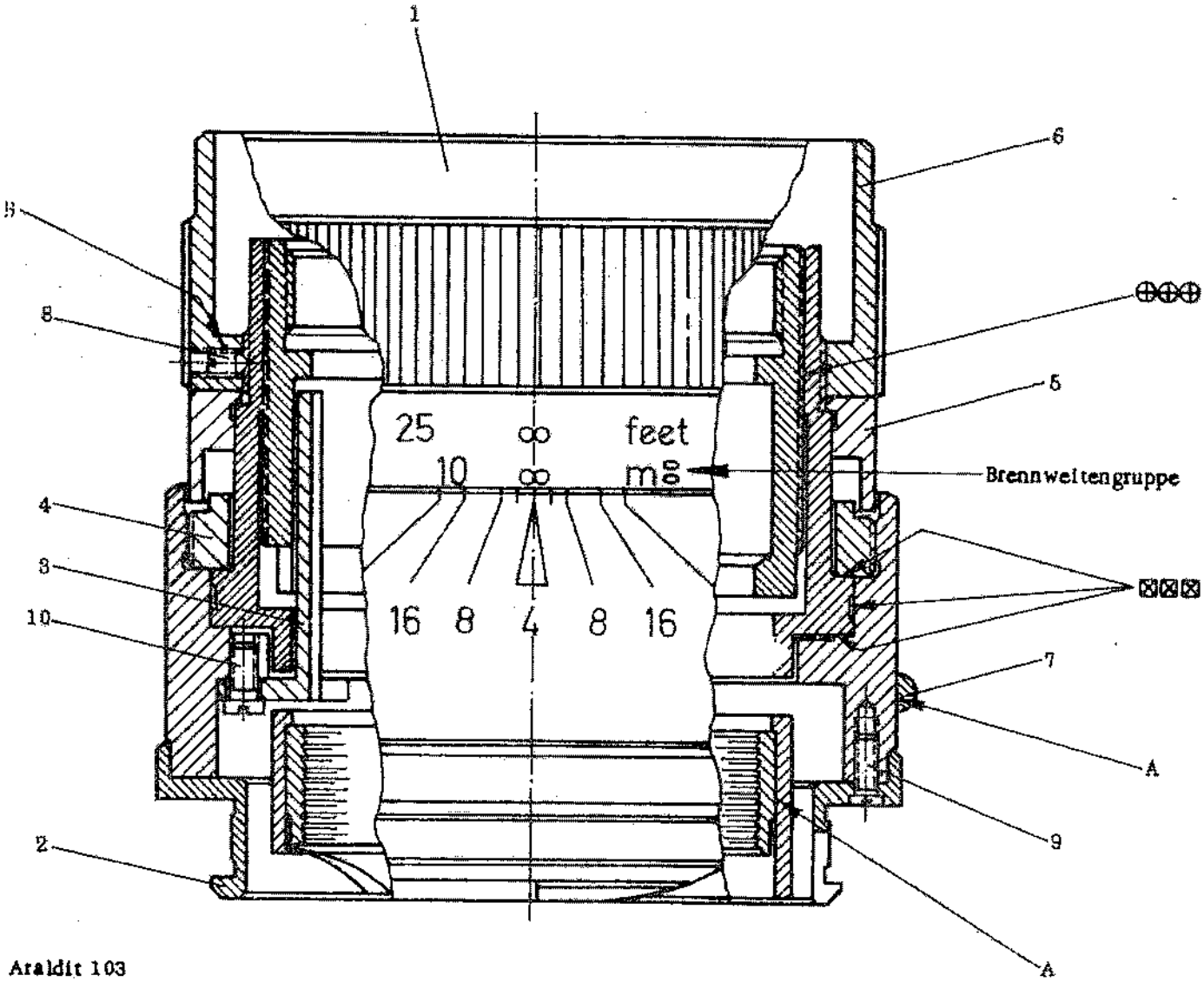
Ir. lo.	Bestell-Nr. Part-No.	PG	Stück Nos.	Benennung	Description
1	040-066.001-009	12	1	Abstimmring	tuning ring
2	040-066.002-000	59	1	Objektivkopf, komplett, Elmar-C 4/90 bitte Brennweitengruppe angeben (siehe Bildseite)	lens head, complete, Elmar-C 4/ please state group of focal length (see ill. page)
3	040-066.002-039	8	10	Lamelle mit Niet	diaphragm leaf with rivets
4	040-066.002-044	16	1	Lamellenführungsring	diaphragm guide ring
5	040-066.002-063	19	1	Schriftring, Elmar-C 4/90 bitte Fabrikations-Nr. angeben	letter ring, Elmar-C 4/90 please state serial-No.
6	040-066.002-065	18	1	Zubehörträger, Elmar-C 4/90	accessory carrier, Elmar-C 4/90
7	040-066.002-068	21	1	Blendeneinstellring	diaphragm setting ring
8	040-066.011-000	59	1	Objektivkopf, komplett, M-Rokkor 4/90 bitte Brennweitengruppe angeben (siehe Bildseite)	lens head, complete, M-Rokkor 4/90 please state group of focal lenght (see ill. page)
9	040-066.011-022	19	1	Schriftring, M-Rokkor 4/90 bitte Fabrikations-Nr. angeben	letter ring, M-Rokkor 4/90 please state serial-No.
10	040-066.011-024	18	1	Zubehörträger, M-Rokkor 4/90	accessory carrier, M-Rokkor 4/90
11	705-175.163-000	3	3	Gewindestift M 2 x 2,5 LN 12043	grub screw
12	707-564.163-000	3	1	Gewindestift M 2,5 x 4 x 2,5 DIN 926	grub screw
13	707-623.163-000	3	1	Gewindestift M 1,6 x 1,6 LN 12043	grub screw



B Sicherungslack/
protective laquer

II 428

Nr. No.	Bestell-Nr. Part-No.	PG	Stück Nos.	Benennung	Description
1	040-066.001-009	12	1	Abstimmring	tuning ring
2	040-066.002-000	59	1	Objektivkopf komplett, Elmar-C4/90 bitte Brennweitengruppe angeben (siehe Bildseite)	lens head, complete, Elmar-C4/ please state group of focal length (see ill. page)
3	040-066.002-037	15	1	Abdeckblende	screw ring
4	040-066.002-039	8	10	Lamelle mit Niet	diaphragm leaf with rivets
5	040-066.002-044	16	1	Lamellenführungsring	diaphragm guide ring
6	040-066.002-063	19	1	Schriftring, Elmar-C 4/90 bitte Fabrikations-Nr. angeben	letter ring, Elmar-C 4/90 please state serial-No.
7	040-066.002-065	18	1	Zubehörträger. Elmar-C 4/90	acessory carrier, Elmar-C 4/90
8	040-066.002-068	21	1	Blendeneinstellring	diaphragm setting ring
9	040-066.011-000	59	1	Objektivkopf, komplett M-Rokkor 4/90 bitte Brennweitengruppe angeben (siehe Bildseite)	lens head complete M-Rokkor 4/90 please state group of focal length (see ill. page)
10	040-066.011-022	19	1	Schriftring M-Rokkor 4/90 bitte Fabrikations-Nr. angeben	letter ring, M-Rokkor 4/90 plase state serial-No
11	040-066.011-024	18	1	Zubehörträger, M-Rokkor 4/90	acessory carrier, M-Rokkor 4/90
12	705-175.163-000	3	3	Gewindestift M2 x 2, 5 LN 120 43	threaded pin
13	707-564.163-000	3	1	Gewindestift M 2, 5x4x2, 5DIN 926	threaded pin
14	707-623.163-000	3	1	Gewindestift M 1, 6x1, 6 LN 120 43	threaded pin



Araldit 103
Sicherungslack

⊕ 710

⊠ 714

Nr. No.	Bestell-Nr. Part-No.	PG	Stück Nos.	Benennung	Description
1	040-066.003-000	43	1	Schneckengang, komplett bitte Brennweitengruppe angeben (ist hinter m (Meter) graviert)	helical lens mount, complete please state group of focal leng (placed behind m (meter)
2	040-066.003-015	24	1	Objektivbajonett	lens bayonet
3	040-066.003-020	18	1	Geradführung	guide piece
4	040-066.003-025	12	1	Vorschraubring	locking ring
5	040-066.003-028	18	1	Skalenring	scale ring
6	040-066.003-030	21	1	Rändelring	knurled ring
7	042-548.001-050	4	1	Tastknopf	orientation knop
8	706-177.163-000	3	1	Gewindestift M 2 x 3 LN 120 43	grub screw
9	706-707.213-000	4	5	Zylinderschraube M 1,7 x 4 LN 12010	cylindrical head sc
10	706-713.163-000	2	3	Zylinderschraube M 2 x 4 LN 12010	cylindrical head sc